

## **Historic, Archive Document**

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VOL. XIX. NO. 7.

APRIL 1, 1891.

PEACE ON EARTH • GOOD WILL TOWARD MEN



GLEANNES  
IN

BEE CULTURE

DEVOTED  
TO  
BEEKEEPING

& HOME INTERESTS.

MEDINA OHIO

BY

AL ROOT

TERMS, ONE DOLLAR PER YEAR.

S W Conrad

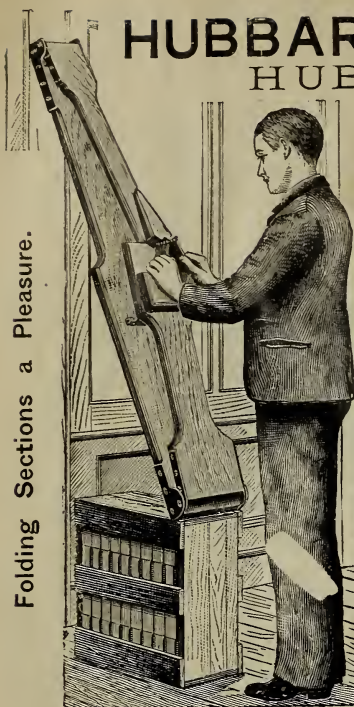
FAIRBANKS, DUNNELL, N.Y.





# HUBBARD SECTION PRESS, HUBBARD BEE HIVE,

Folding Sections a Pleasure.



And other Apian Supplies.

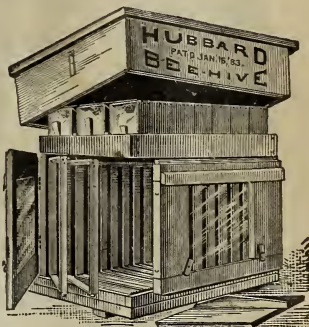
Send for descriptive circular.

**C. K. HUBBARD,**  
Fort Wayne, Ind.

This Section Press (Pat. June 17, 1890) is far in advance of anything else of the kind on the market. It is practically automatic. Both hands can be used to handle the sections, and a slight forward push forces together the dovetailing, thus completing the sections with marvelous rapidity. Price \$2.50. Ask your supply dealer for it. Supply dealers, send for wholesale prices.

The HUBBARD HIVE has been in use 8 years, and has stood the test nobly. Trade has been constantly growing, owing to the excellent satisfaction it gives. If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs and kill bees while handling them you will be pleased with this hive.

**The Man Who is Willing to Work** can make money fast selling these hives. \$5.00 to \$10.00 often made at it in a day. Send for Circular.



SECTIONS, SMOKERS, DADANT'S COMB FOUNDATION, ETC.

For revised "1st Principles in Bee Culture," 104 pages—the largest and best work of the kind for the price. First 68 pages contain no advertisements, but are filled with such practical information as how to divide, transfer, introduce Queens, feed, unite, stop robbing, raise honey, etc. The book receives many compliments. If you do not like it, return it and get your money.

15c.

In responding to this advertisement mention GLEANINGS.

5-6-7-8-9-11d

## NOW, FRIENDS, LOOK HERE!

I sell the Nonpareil Bee-Hive, White Poplar Sections, Italian Bees and Queens. Price List free. Write for one. 8tfdb

**A. A. BYARD, West Chesterfield, N. H.**

In responding to this advertisement mention GLEANINGS.

## 10 pkts. SEEDS 25 Cts.

For 25c we will send you terms to agents, and the following 10 pkts. of seeds, that you may have a few samples to show to your friends when taking orders. Winningstadt Cabbage; Seminole Watermelon; Early Red Turnip Beet; Hollow Crown Parsnip; Grand Rapids Lettuce; Rosy Gem Radish; Montreal Muskmelon; Golden Queen Tomato; 1/2 pt. Alaska Peas (10c pkg.); Mikado Tomato.

Catalogue free. **G. D. BLACK & BRO.,**  
INDEPENDENCE, IOWA. SEED GROWERS.

In writing to advertisers please mention this paper.



3tfdb

## CHEAP ENOUGH.

Sections, \$3.00 per 1,000. Foundation, 45 cts. per pound; Chaff Hives, \$1.25 each; Simplicity hives, 90 cts. each; Dovetailed hives, 80 cts. each, and every thing needed in the apianry, cheap. Send for illustrated price list for 1891, free.

"How I Produce Comb Honey," by mail, 5 cts. Third edition just out. Address

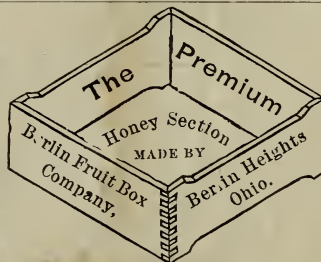
**GEO. E. HILTON, Fremont, Mich.**

Please mention this paper.

## TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE, KEITH & SCHMIDT CO.,**  
21-12db New London, Wis.

In responding to this advertisement mention GLEANINGS.



Please mention this paper.

## ONE-PIECE SECTIONS,

both No. 1 & 2; WOOD SEPARATORS and other bee-supplies. Also BERRY-CRATES, BASKETS and BOXES, made up or in flat. Send for catalogue. Address as in cut.

5-10db

The **Bee World** is published monthly at 50c per year. It is devoted to THE BEE tions, and discovery collecting the latest NEWS, inventions, bee-keeping world. If you want to keep posted, you cannot afford to do without it. **Subscribe now.** Sample copies free. 2-7db **W. S. VANDRUFF, Waynesburg, Pa.**

In responding to this advertisement mention GLEANINGS.

## ✕ Gentle · Carniolans. ✕

To reduce my stock I will sell 50 colonies of Carniolan bees. All with carefully bred, prolific young queens. Prices reasonable.

5-8db **T. E. TURNER, Templeton, Wis.**

## SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, \$3.50 per 1000; 2000 to 5000, \$3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at \$2.00 per 1000. Send for price list on hives, foundation, cases, etc.

**J. STAUFFER & SONS,**  
Successors to B. J. Miller & Co.,  
Nappanee, Ind.

16-tfdb

In writing advertisers please mention this paper.





"I tell you what, Jones, Levering Bros. sell the best goods and at the lowest prices of any one I've struck yet."

## The LARGEST and BEST EQUIPPED BEE-HIVE FACTORY IN THE WEST.

THE NEW DOVETAILED HIVE A SPECIALTY.

Every thing used by practical bee-keepers by wholesale and retail. Send for our '91 illustrated price list and save money. Address 4-15db

**LEVERING BROS., Wicota, Cass Co., Ia.**

In responding to this advertisement mention GLEANINGS.



Please mention this paper.

2tfdb

## SAVE FREIGHT

By buying your supplies near home. Catalogue for your name on a postal card. Address

4-8db **J. W. ROUSE & Co., Mexico, Mo.**

d

Please mention this paper.

## NEW \* FACTORY.

Bee-Hives, Sections, Frames, Etc.

We have moved into our new factory, which is the largest and most complete in the world. We make the best goods, and sell them at the lowest prices. Write for free illustrated catalogue.

**G. B. LEWIS CO.,**

17-tfdb,

**WATERTOWN, WIS.**

In responding to this advertisement mention GLEANINGS.

## 1891. NEW BEE-HIVE FACTORY. 1891.

Root's Dovetailed Hive a specialty. Price List free. Save your freight, and order early of

1tfdb

**GEO. W. COOK,**

**Spring Hill, Johnson Co., Kan.**

Please mention this paper.

## Syracuse, New York,

IS A DEPOT FOR THE EAST FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

**FOUNDATION is Our Own Make.**

Don't buy foundation of us, for it would please you.

**F. A. SALISBURY.**

In writing to advertisers please mention this paper. 4tfdb

## Queens Ready to Mail.

Tested Italian queen, \$2.00; 3 for \$5.00. Will mail them now and guarantee safe arrival. Untested, \$1.00; 3 for \$2.75, or \$9.00 per doz. sent after Mar. 20. Make money orders payable at Clifton. Send for price list.

4tfdb

**COLWICK & COLWICK,**

**Norse, Bosque Co., Texas.**

In responding to this advertisement mention GLEANINGS.

## BEE-KEEPERS' SUPPLIES.

We manufacture all kinds of bee-keepers' supplies and novelties, for wholesale and retail trade.

Best Goods at Lowest Prices.

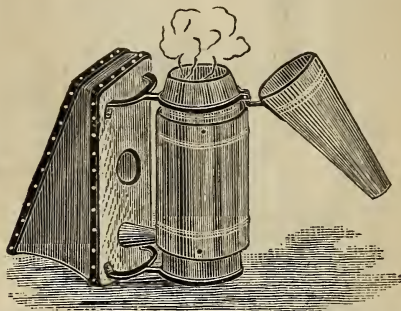
Send for FREE illustrated catalogue for 1891.

**THE BUCKEYE BEE SUPPLY CO.,**

3-8db

**NEW CARLISLE, OHIO.**

Please mention this paper.



Smokers, Foundation, and all kinds of bee-keepers' supplies furnished at lowest cash price. If you want the best Smoker in the market get one of the Quinby old reliable—made the strongest; and although the first cost is more than that of any other made, the Jumbo is the boss of all. It has been used constantly in yards for 8 years, and still it goes. Send and get price list of Smokers, Foundation, Sections, and every thing used in the apiary. Dealers should send for dealer's list on smokers.

4-14db

**W. E. CLARK, ORISKANY, N. Y.**

In responding to this advertisement mention GLEANINGS.

## SUPPLIES.

Standard goods, best shipping point, reasonable price. 33-page catalogue free.

6-18db

**WALTER S. POWDER, 175 E. Walnut St.,**

**Indianapolis, Ind.**

## \*THE CANADIAN\*

**Bee Journal**

**Poultry Journal**

Edited by D. A. Jones.

Edited by W. C. G. Peter.

75c. Per Year.

75c. Per Year.

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address \$1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

**The D. A. Jones Co., Ltd., Beeton, Ont.**

In response mention GLEANINGS.

**JAPANESE BUCKWHEAT,**  $\frac{1}{2}$  bu., 50c; bu., 90c; two ornore, 80c; sacks included.

7-8d **W. B. COLLINS, Blackwater, Cooper Co. Mo.**

## BEE-KEEPERS' SUPPLIES.

GOOD AS THE BEST; CHEAP AS THE CHEAPEST.

Send for my new Price List of Hives, Sections, Foundation, Queens, etc., etc. We are prepared to fill your orders at once, and guarantee satisfaction. Will pay 23c cash, or 25c in trade, for fair average BEESWAX, delivered here. 3-8db

**A. A. WEAVER, Warrensburg, Johnson Co., Mo.**

In responding to this advertisement mention GLEANINGS.

**FOR SALE.** Black Minorcas and Pekin duck eggs, \$1.00 per 13. Bear-paw corn, 75c peck, \$2.75 per bush. **J. V. HURLESS, Archer, Harrison Co., O.**

## Wants or Exchange Department.

**WANTED.**—To exchange bees for a tubular boiler from 4 to 8 horse power. Correspondence solicited. D. S. BASSETT, 4-tfdb Farnumsville, Worcester Co., Mass.

**WANTED.**—To exchange 1 lb. thin Vandervort fdn. for 2 of wax. Samples and testimonials free. 2-7db C. W. DAYTON, Clinton, Wis.

**WANTED.**—To exchange Pekin ducks for maple sugar. Will exchange eggs for sugar. 7d CHAS. McCLAVE, New London, O.

**WANTED.**—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made. 19tfdb EARLE CLICKINGER, 121 So. 4th St., Columbus, O.

**WANTED.**—To exchange pure Brown Leghorn eggs for tested Italian queens. 5-tfdb GEER BROS., St. Marys, Mo.

**WANTED.**—To correspond with parties who wish to improve their poultry. Fair dealing. 5-tfdb D. F. LASHIER, Hooper, Broome Co., N.Y.

**WANTED.**—To exchange fruit trees and plants now, bees and queens in May and June, honey from crop of 1891, for bee-hives and fixtures. Address JOHN W. MARTIN, 6tfdb Greenwood Depot, Alb. Co., Va.

**WANTED.**—To exchange bees in 10-frame Langstroth hives at \$5.00 per colony, for foundation at market price. A. C. BUGBEE, 6-7d Lochiel, Benton Co., Ind.

**WANTED.**—To exchange bees for young horse. 6-7d A. C. WALDRON, Buffalo, Minn.

**WANTED.**—To exchange a saw, with countershaft, belt, etc., and an Excelsior force-pump. 6-7d L. L. ESENHOWER, Reading, Pa.

**WANTED.**—Pure Italian queens, sections, nursery stock, or offers, for pure P. Rock eggs or Quinby hive-corner clasps. L. C. AXTELL, Roseville, Ill. 6tfdb

**WANTED.**—To exchange some excellent offers for bees by the pound, and foundation. 6-7d L. L. ESENHOWER, Reading, Pa.

**WANTED.**—To exchange prize-winning Brown Leghorn eggs—\$1 per 15—for flowers, seed, or offers. 7-8d MRS. ELLA LAWS, Lavaca, Ark.

**WANTED.**—To exchange pure Italian bees, queens, or hives, for a gentle horse—one that ladies can drive. Send for price list. MRS. OLIVER COLE, 7tfdb Sherburne, Chenango Co., N. Y.

**WANTED.**—To exchange Cuthbert raspberry plants, for honey, comb foundation, onion-sets, Globe artichoke plants, or any thing I can use. Write for particulars. 7d WM. H. WEISER, York, York Co., Pa.

**WANTED.**—To exchange black bees and raspberry sets, etc., for queens, bees, wax, or offers. 7d R. J. NASH, Williamson, Wayne Co., N. Y.

**WANTED.**—For sale, or exchange for smaller farm, 100 acres of choice fruit, hay, and grain land, all under good cultivation, well seeded and well fenced, 3½ miles north of Cass City, on State Road, in a thickly settled neighborhood of mostly Canadians and Germans; ½ mile from new M. E. church; one mile from school. Five acres of young, bearing, grafted, apple, pear, plum, and cherry trees; 30 Concord grapevines, plenty of currants, gooseberries, etc. A dwelling-house 18x26, with an addition 16x24; 1 barn, 32x70; also 1 barn, 24x32; sheep-shed, 12x32; 1 work-shop, 13x16; four good wells; 40 colonies bees in Simp. hives; team, stock, and farming tools. Price of land, \$4090. Reason for wanting to sell, wife's health is poor. For further particulars address WM. MARTIN, 7-10db Cass City, Tuscola Co., Mich.

**WANTED.**—To exchange comb foundation for beeswax.

J. S. BROOKS, Silverton, Marion Co., Ore.

**WANTED.**—To buy bees, or exchange for bees, apiarian supplies, secretary, hat-rack, bedroom set, or any piece of cabinet work desired. Will send designs for inspection. All work guaranteed, first-class.

7d CHESTER OLMSTEAD, East Bloomfield, N. Y.

**WANTED.**—To exchange P. Rock and L. Wyandotte eggs, valued at 15 for 75 cts.; L. & H. foundation, beeswax, maple syrup, valued at \$1.00 per gallon, for bees. 7d F. W. DEAN, New Milford, Pa.

**WANTED.**—Your wax to work up at lowest living prices. Write at once to 7tfdb J. V. CALDWELL, Cambridge, Henry Co., Ill.

**WANTED.**—Man who understands the care of bees in movable frames. A few swarms on private place, \$20 and board per month. References required. JAS. HORROCKES, 7-8 Hyde Park, Dutchess Co., N. Y.

## PURE :: ITALIAN :: QUEENS.

TESTED, \$1.50.

IMPORTED

UNTESTED, \$1.00.

MOTHER.

MISSIS S. & M. BARNES, PIKETON, OHIO.  
Please mention GLEANINGS. 6-7-8-9-10-12d

## Cole's Garden-Plow.

I will sell one or more garden-plows at 30 per cent off from the retail price, to any one ordering before an agency is established in his place. Send for circular and price.

G. W. COLE, Canton, Ill.

Please mention this paper.

## FOR SALE.

My Carniolan and queen-raising apiaries, with the agency of the Chicago Bee-Keepers' Supply Co. at Topeka, with a large trade established. Reason of change to take charge of our Chicago depot.

J. B. KLINE, Topeka, Kan.

In writing advertisers please mention this paper.

**BRONZE TURKEY EGGS**, \$3.00 per 13. Pekin Duck eggs, \$1.00 per 13. Pure stock. 7-d J. C. PROVINS, Masontown, Pa.

**FOR SALE.**—Eggs of Golden Wyandottes, \$2.00 per 13. Silvers, \$1.00 per 13. Japanese buckwheat, \$1.00 per bushel. Sacks, 18c. 7-10-db P. F. RHODES, New Castle, Ind.

## I Have SEED POTATOES for SALE,

which I will put on board cars for \$2 per bushel. I have the Everett and Early Ohio in limited quantities. A. J. KIEFFER, Nevada, Wyandot Co., O. 7d Please mention this paper.

**FOR SALE.**—I have about 30 choice tested Italian queens at \$1.25 each, 3 for \$3, \$11 per dozen, guarantee satisfaction and safe arrival. 7d

D. D. HAMMOND, Malone, Ia. 7tfdb Please mention this paper.

## CARNIOLANS

Are the gentlest, most industrious, and hardiest bees known. Our Carniolans show no yellow bands. *Pure Carniolans do not.* We have a fine stock of tested queens for early orders. Descriptive price list free; send for it. F. A. LOCKHART & CO., 7-9d Lake George, Warren Co., N. Y. Please mention GLEANINGS.

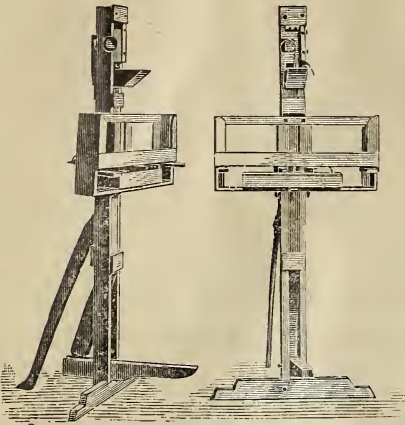
## For Sale—Hybrid Bees.

**25 GOOD COLONIES** in shipping-cases, with 9 S. frames, \$3.00 each. Also 25 Chaff hives at \$1.00 each. Delivered at R. R. station any time after May 1. Reference, A. I. Root. 7tfdb MABEL A. FENN, Tallmadge, Ohio. Please mention this paper.



**PHILO'S AUTOMATIC  
SECTION-BOX GLUING-MACHINE,**  
For Putting Together and Automati-  
cally Gluing the One and Four-  
Piece Section-Boxes.

It Does its Work with Neatness and Despatch.



No Extra Time Required in Gluing.

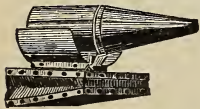
This is the only machine on the market that will put the glue right where it belongs without wasting the glue or marring the section.

Price of the combined machine, - - - \$6.00  
For four-piece only, - - - 5.00

**E. W. PHILO, Half-Moon, N. Y.**

In responding to this advertisement mention GLEANINGS.

**\*BEST ON EARTH\***



ELEVEN YEARS  
WITHOUT A  
PARALLEL AND  
THE STAND-  
ARD IN EVERY  
CIVILIZED  
COUNTRY.



**Bingham & Hetherington  
Patent Uncapping-Knife,  
Standard Size.**

**Bingham's Patent Smokers,**

**Six Sizes and Prices.**

Doctor Smoker,	3 1/2 in.,	postpaid	...\$2.00
Conqueror	3 "	"	... 1.75
Large	2 1/2 "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow)	2 "	"	... 1.00
Little Wonder,	1 1/2 "	"	... .65
Uncapping Knife.....			... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to  
1tfdb **BINGHAM & HETHERINGTON, Abnoria, Mich.**

In responding to this advertisement mention GLEANINGS.

**FOR SALE** (for 1891) cheap, for cash. Italian Bees and Queens. Address  
OTTO KLEINOW, Apiarist,  
6-7d 150 Military Ave., Detroit, Mich.

**5-BANDED GOLDEN ITALIANS.**

Beauties! The best workers we ever saw. Work on red clover. Very gentle. Drones 1/4 to 1/2 yellow. Won 1st Premium at Ill. State Fair in 1890. Nearly 300 booked for 1891. Warranted Queens, May, \$1.25, 6 for \$6.00; after June 1st \$1.00, 6 for \$5.00. Special discount for large orders as to dealers. Have your order booked now in order to get them when wanted. Satisfaction guaranteed. No foul brood. Select Barred Plymouth Rock Eggs, \$1 per 13. Good reference given.

1tfdb **S. F. & I. TREGO, Swedona, Ill.**

In responding to this advertisement mention GLEANINGS.

**TAKE NOTICE.**

**Our New Factory is Now Open**

To receive orders for **Bee-Hives, Frames of all kinds, Shipping - Crates, Sections, Honey - Cans, Comb Foundation, and Smokers.** Write for price list to

**GREGORY BROS. & SON,**

5-tfdb

Ottumwa, Wapello Co., Iowa.

In responding to this advertisement mention GLEANINGS.

**ATTENTION, CALIFORNIANS!**

I have for sale 16000 1-lb. V-groove one-piece white basswood sections, 1 1/2 wide, made by A. I. Root. Price \$5.00 per M, put on cars at King City, Monterey Co., Cal. For 5000 or more, write for special prices to  
C. K. ERKANBRACK, JUN.,  
4tfdb Lonoak, Monterey Co., Cal.

In responding to this advertisement mention GLEANINGS.

**SECTIONS.**

**\$2.50 to \$3.50 per M. Bee-Hives and Fix-  
tures cheap.**

**NOVELTY CO.,**

6tfdb

Rock Falls, Illinois.

In responding to this advertisement mention GLEANINGS.

**EGGS!** Brown Leghorn, White Leghorn, \$1.25. Black Minorca, Plymouth Rock, Pekin Duck, \$1.50. Light Brahma, Langshan, Game, \$2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**  
1tfdb St. Marys, Mo.

In responding to this advertisement mention GLEANINGS.

**VANDERVORT  
COMB-FOUNDATION MILLS.**

Send for samples and reduced price list.

1tfdb **JNO. VANDERVORT, Lacayville, Pa.**

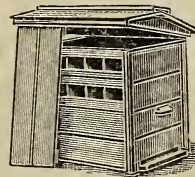
In responding to this advertisement mention GLEANINGS.

**DOWN THEY GO!**

For the next few days \$1.25 will buy our 8-frame chaff hive, with 2 T supers and 8 heavy top-bar brood-frames.

Send for **PRICE LIST.**

**ROE & KIRKPATRICK,  
Union City, Ind.**



1tfdb

Please mention this paper

**100,000 STRAWBERRY-PLANTS.**

Best new and old varieties. Prices low. Also Grapevines, Raspberry, and Blackberry plants, etc. Send for price list. **D. G. EDMISTON,**  
6-7-8d Adrian, Lenawee Co., Mich.

In responding to this advertisement mention GLEANINGS.

**READY TO MAIL, TESTED ITALIAN QUEENS.**

Reared last Aug., \$1.75; after March, \$1.50. Untested, from Doolittle's Select Mother, raised by his method, \$1.00. Reduction on 3 or more. Orders booked now; pay when queens are wanted. 6-7-8d  
**JOHN B. CASE, Port Orange, Vol. Co., Fla.**

In responding to this advertisement mention GLEANINGS.



## The Greatest Invention of the Age!

**BEES MADE TO LIVE THEMSELVES.**

Full particulars free. Address

5-tfd

**H. ALLEY, Wehham, Mass.**

Please mention this paper.

## NEW FACTORY.

No. 1 Sections, \$3.50; No. 2, \$2.75. Fine Comb Foundation a specialty.

**M. S. ROOF, 520 East Broadway,**  
6-17db **Council Bluffs, Ia.**

In responding to this advertisement mention GLEANINGS.

## Bees & Supplies for Iowa.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address **Oliver Foster,**  
5-ftdb **Mt. Vernon, Linn Co., Iowa.**

3-4d

Please mention this paper.

## BEE-KEEPERS

Send for my illustrated Catalogue of Bee-Keepers' Supplies. Prices reasonable.

**F. W. LAMM,**

**Box 106,**

**Somerville, Butler Co., O.**

3-8db

Please mention this paper.

SEND ME YOUR

## BEE SWAX

To be made into Foundation. Made on Root or Vandervort mills. Samples of work free.

5-6

**C. A. HUFF, Clayton, Mich.**

## SECTIONS

\$3.00 per 1000; all kinds of bee-supplies cheap. Send for free illustrated catalogue.

**J. J. BRADNER,**

5-7-9d

**600 Lima Ave., Findlay, O.**

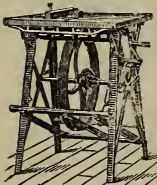
## HONEY A NEW DISCOVERY.

Differing from all others ever yet made for the purpose:

## EXTRACTOR.

It works strong, thorough, neat, handy and rapid, and is the cheapest Extractor known. Send 2-ct. stamp for a circular of 18 pages to **REV. A. R. SEAMAN, Connellsville, Fayette Co., Pa.** 5-15d

## Barnes' Foot-Power Machinery.



Read what **J. I. PARENT, of CHARLTON, N. Y.,** says—"We cut with one of your Combined Machines last winter 50+ chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of beehives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address **W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.**

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. **A. I. ROOT.** 23ftd

## Bee-Keepers' Supplies.

**WHY \* SEND \* LONG \* DISTANCES ?**

SEND YOUR ADDRESS (DON'T FORGET THE COUNTY) FOR MY NEW PRICE LIST FOR 1891.

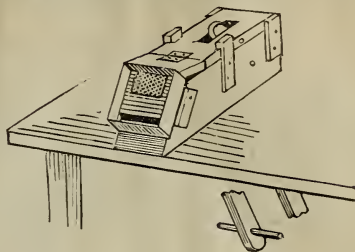
**C. P. BISH, Grove City, Mercer Co., Pennsylv'a.**

ESTABLISHED IN 1884.

Please mention this paper.

7ftd

## The Burdsall Foundation Fastener



## THE BEST MACHINE MADE.

Satisfaction guaranteed. Send for catalogue and price.

**The Burdsall Apiary and Supply Factory,**

4-11db

**Box 744, Lebanon, Ohio.**

In responding to this advertisement mention GLEANINGS.

## BEE SWAX

**FOR SALE.**—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted. **ECKERMANN & WILL,**

Bleachers, Refiners, and Importers of Beeswax,

5-16db

**Syracuse, N. Y.**

In responding to this advertisement mention GLEANINGS.

**\$5.00 IN MAY, AND \$4.50 IN JUNE,**

—WILL BUY—

## A Strong Full Colony of Pure Italian Bees

in Root's new Dovetailed or the old Simplicity hive, as you prefer. Each to contain a fine tested queen and plenty of bees and brood. Everything first-class. Pure Japanese Buckwheat, per bu., \$1; ½ bu., 60c; ¼ bu., 35c, bag included. Scotch Collie Pups, \$1 each.

**N. A. KNAPP, Rochester, Lorain Co., O.**

6ftdb

Please mention this paper.

## HIVES AND FRAMES.

8-frame hive, with two supers, 90c; 10, \$8.00. Thick-top brood-frames, with top-bar split to receive fdn. guide, per 100, 90c; other styles, \$1.00 per 100. No. 1 sections, \$3.00 per M. Parker fdn-fasteners, 20c, this month only. Circular free. 19-17d

## SPECIAL RATES TO DEALERS.

Write us.

**W. D. SOPER & CO.,**

118-120 Washington St. E., **Jackson, Mich.**

In responding to this advertisement mention GLEANINGS.

## BEEES FOR SALE.

**COLONIES, NUCLEI, and QUEENS**

at living rates. Send for circular and price list to

**C. C. VAUGHN,**  
**Columbia, Tenn.**

6ftdb



## Printing,

Note Heads, Bill Heads, Envelopes, Business Cards 250 for \$1.00

Post Paid. Good honest work and paper. 50 Ladies Cards in Steel Plate Script 25 c. No Samples. 12 Years in Business. Send Copy and dollar to **BURTON L. SAGE, New Haven, Conn.**

# ADVANCED BEE - CULTURE;

## Its Methods and Management.

I am now engaged in writing and printing a book that is to bear the above title. It is to take the place of my other book, *The Production of Comb Honey*, which will not be re-published. Although the new book will contain at least five or six times as much matter as *The Production of Comb Honey*, yet the price will be only 50 cts. The book is already partly printed, and will probably be out some time in April or May. If any of the friends would like to "help me along" in meeting the expenses of getting out the book, they can do so by sending their orders in advance. Such orders will be most thankfully received, and filled the very day the book is out. I will send the REVIEW one year and the book for \$1.25. The REVIEW will be sent on receipt of order (I have plenty of back numbers to send it from the beginning of the year), and the book as soon as it is out. Stamps taken, either U. S. or Canadian. Samples of REVIEW sent free. 10tfdb

W. Z. HUTCHINSON, Flint, Mich.

☞ In responding to this advertisement mention GLEANINGS.

# Leahy M'fg Co.,

—UNDOUBTEDLY THE—

## LARGEST PLANT IN THE WEST,

Built exclusively for the manufacture of Apiarian Supplies. One and One-Half Acres Floor Space. We sell as Cheap as the Cheapest, and our goods are as Good as the Best. Parties will do well to write us for estimates on large orders. We will send you our catalogue for your name on a postal card. Address **LEAHY MFG. CO.,** 7tfdb  
Higginsville, Mo.

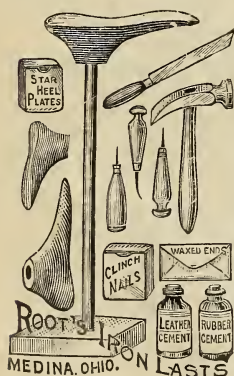
Please mention this paper.

## TAKE ANOTHER LOOK

At my "ad" on page 242, Gleanings for March 15, IT WILL PAY YOU. 7d

## C. J. BALDRIDGE, KENDAIA, N. Y.

Please mention this paper.



## ROOT'S Household Repairing OUTFIT.

A combination of tried, practical, common-sense tools and materials that will enable any one with ingenuity enough to nail on a fence-board to do his own half-soling, boot, shoe, rubber, and harness repairing. No pegs are used—simply wire clinch nails. Saves time, trouble, and expense. Entire outfit neatly boxed, only \$2. Supply-dealers should sell them. Send for circular to

**ROOT BROS.,**  
Medina, Ohio.

Mention GLEANINGS.

## PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

## THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.



**J. VAN DEUSEN & SONS,**

Sole Manufacturers, 5tfdb  
Sprout Brook, Montgomery Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS.

## BUCKWHEAT.

MARTIN'S PROLIFIC.

This buckwheat under favorable conditions will yield 70 bushels per acre, as it is an enormous yield—stands up well and endures drouth remarkably well. Last season it yielded double the quantity per acre sown, under the same or rather worse conditions than my Japanese, 100 rods distant, and did not blast one-half as bad. I think it will supersede the Japanese when better known. Price \$1.50 per bushel, 85c per half bushel, bags included. \$1.25 per bu. for 5 to 10 bushels. Remit by P. O. order, bank draft or registered letter to the originator, 7-10db  
**WM. MARTIN, CASS CITY, TUSCOLA CO., MICH.**

Please mention this paper.

## GOLDEN ITALIANS.

AND THE BEE-KEEPERS' REVIEW.

I have purchased the queen that, together with her bees, took **first premium** last fall at the Detroit Exposition. They are the Five-banded Golden Italians. The **handsomest** and **gentlest** bees, and the **yellowest** drones I have ever seen. They are not inclined to rob, and it is claimed they work on red clover. After June 1st I shall offer the daughters of this queen for \$1.00 each, or 6 for \$5.00. I have a number of tested queens, reared last season by H. Alley from his "one-hundred-dollar queen," that I will sell for \$2.00 each. In order to secure a few orders early, to all persons who send me, before **May 1st**, \$1.75, I will send one five-banded Golden Queen, and the **BEE-KEEPERS' REVIEW** one year; for \$2.75 one of the tested Alley queens and the **REVIEW** one year. The **REVIEW** is published monthly by W. Z. Hutchinson, at \$1.00 a year. The **REVIEW** will be sent on receipt of order. Untested queens will be sent after June 1st; tested queens the last of May. All orders will be filled in rotation. Make money orders payable at **Flint, Mich.** Address

**ELMER HUTCHINSON,**

Rogersville, Genesee Co., Mich.

Please mention this paper.

## L. C. ROOT APIARY FOR SALE.

A first-class opening for an energetic man. Nice home.

**BUILT ESPECIALLY FOR BEE-KEEPING.**

Nice garden, plenty of fruit, etc. Room for out-apiaries. 7tfdb

**J. C. HAINES, MOHAWK, N. Y.**

☞ In responding to this advertisement mention GLEANINGS.

## FOR SALE.

10 colonies of Italian bees cheap, if sold soon. 7d  
**MRS. N. MARKS, Newburg, Cuy. Co., O.**

## PEKIN DUCK EGGS

\$1.25 per 13, from large fine ducks. Now is the time to buy. A few pairs at \$3.50 per pair. Largest breeder in Ohio. 7d  
**CHAS. McCCLAVE,**

Box 40, New London, O.

Please mention GLEANINGS.



## HONEY COLUMN.

### CITY MARKETS.

**NEW YORK.**—*Honey.*—Market is entirely bare, with little or no demand, except for some 2-lb. fancy white, which would readily be taken. California extracted honey in fair demand at 6¼¢; Florida, 7¼¢. *Beeswax.*—Stocks and supply very small. Prices gradually growing better. We quote, for good yellow, 27¢. F. G. STROHMEYER & Co., Mar. 19. New York.

**CINCINNATI.**—*Honey.*—There is a good demand for extracted honey at 6¢ a lb. on arrival. Demand for comb honey is fair at 15¢ a lb. for choice white, in a jobbing way. Demand is good for *beeswax* at 24¢ a lb. for good to choice yellow on arrival. Cincinnati, Mar. 18. CHAS. F. MUTH & SON.

**ALBANY.**—*Honey.*—Have received one consignment of comb honey in pound sections since last issue, and sold the clover at 16¢ and the buckwheat at 13¢. We are out of buckwheat in pound sections. Dark extracted honey is moving off lively at 7¢. Light sells slow at 9¢ 1 c. Mar. 21. CHAS. McCULLOCH & Co.

**DETROIT.**—*Honey.*—Comb honey is selling slowly at 14¢ 15 cents. Extracted, 7¢ 8¢. *Beeswax* firm at 28¢ 29¢. Bell Branch, Mich., Mar. 20. M. H. HUNT.

**KANSAS CITY.**—*Honey.*—Demand continues steady for 1-lb. comb. Stocks very light, receipts light. We quote 1-lb. comb, white, 16¢ 18¢; dark, 12¢ 13¢; 2-lb. California comb, 14¢ 15¢. Extracted, 6¢ 7¢. *Beeswax*, 22¢ 25¢. CLEMENS, MASON & Co. March 23.

**SAN FRANCISCO.**—*Honey.*—Extracted honey, 6¢; Comb, 1-lb., 12¢ 14¢; 2-lb., 11¢ 12¢. *Beeswax.*—No supplies. SCHACHT, LEMCKE & STEINER, Mar. 18. San Francisco, Cal.

**FOR SALE.**—"Choice orange-blossom" extracted honey in 60-lb. tin cans, or kegs holding 14 to 15 gallons. Price \$1.25 per gallon, f. o. b. cars here.

ARTHUR F. BROWN,  
Huntington, Putnam Co., Fla.

**FOR SALE.**—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired. 11fdb E. J. BAXTER, Nauvoo, Ill.

## SPECIAL NOTICES.

### GRAPEVINES FOR SHADING HIVES.

By some misunderstanding, our ordinary grapevine advertisement was left out of our regular catalogue, and also out of the seed catalogue. We have a beautiful stock of two-year old Concord grapevines, ready to ship. Price 10 cts. each; 85 cts. for 10, or \$7.00 per 100. If wanted by mail, add 3 cts. each extra.

### VEGETABLE-PLANTS FOR THE FIRST OF APRIL.

*Asparagus-plants.* We have a nice lot of fine ones, but they are only one year old. Price 10 cts. for 10; 75 cts. per 100; 1000, \$6.00.

*Cabbage-plants.* We have only the Select Early Jersey Wakefield. Price 5 cts. for 10; 40 cts. per 100; \$3.00 per 1000.

*Cold-frame plants,* none to spare.  
*Snowball cauliflower,* same as asparagus.

*Lettuce-plants.* We have Grand Rapids and Henderson's New York, at the same prices as cabbage-plants.

*Celery-plants.* White Plume, Self-blanching, ready to ship. Same prices as cabbage-plants.

If wanted by mail, add 5¢ for 10, or 25¢ per 100, on all above plants.

*Strawberry-plants.* We are shipping daily, as per editorial on page 187, March 1.

### ITALIAN BEES FOR SALE.

I will sell pure Italian bees in good L. portico hives at \$5.50, or two for \$10.00. Also pink and white sweet peas at 13 cts. per oz., or 75 cts. for 2 oz. 7d C. G. FENN, Washington, Conn.

## NEBRASKA

For Nuclei Colonies and Italian Queens. Circular and price list now ready. 7fdb

Box 874.

J. M. YOUNG,  
Plattsburg, Neb.

1891

Early Italian queens from bees bred for business. Each \$1.00; six \$4.50. Order now, pay when queen arrives. 7fdb W. H. LAWS, Lavaca, Ark.

## DON'T FORGET

That I am now booking orders for those beautiful ALBINO QUEENS, and the well-known Italians. Send in your order and pay when queens are ready to ship. A. L. KILDOW, Sheffield, Ill.

Please mention this paper. 7d

## LEATHER-COLORED

PRICE LIST FREE ON APPLICATION.

A. E. MANUM, - - BRISTOL, VT.

## ITALIAN QUEENS.

Please mention this paper. 7-14db

### FOR SALE.

One double-drum, "Ledger Wood," hoisting-engine, cylinders 7x9 in. Used one month. 7-8d W. S. AMMON, Reading, Pa.

**FRIENDS,** if you want three or four L. frame nuclei full of nice Italian bees, queen, and capped brood, or queens, that will give satisfaction, at reasonable prices, write to 7fdb W. A. SANDERS, Oak Bower, Hart Co., Ga.

### IMPORTED ITALIAN QUEENS.

W. C. FRAZIER, ATLANTIC, IOWA.  
7-17db Please mention this paper.

## NEW ORLEANS APIARIES

Italian and Carniolan bees and queens for sale.

Send in your orders now, and the money when bees or queens are wanted. Purity and safe arrival guaranteed. Address 7d J. W. WINDER, 572 MAGAZINE ST., NEW ORLEANS.

Mention this paper.

### SEND TO E. J. SHAY,

Thornton, Taylor Co., W. Va., for illustrated catalogue of bee-keepers' supplies, both in the flat and set up. 7fdb E. J. SHAY.

## FOR SALE!

100 colonies of bees, Italians and hybrids, in eight-frame, Langstroth, portico, movable hives. Price for Italian, \$4.50; hybrids, \$4.00 each. I guarantee safe delivery. 7-8-9d CHRISTOPHER GRIMM, Jefferson, Wis.

### FOR SALE.

Italian and hybrid bees in Dovetailed and new Heddon hives. Price \$6 and \$4 respectively. One reliable pit game cock, \$3; two pair of steels, \$4; one hot-water incubator, 50-egg capacity, \$6; one-horse-power engine and boiler in good order, \$25. 7-8d J. T. FLETCHER, Clarion, Pa.

Please mention this paper.

## STOP! THINK! ACT!

Griffith's Italian queens will give you strong colonies, plenty of honey, and nice bees. 7-12db Unfested queens in May, \$1.00.

" " in June, July, and Aug., 75c.

Tested " " in May, \$1.25.

" " in June, July, Aug., & Sept., \$1.00.

All queens reared from best imported and choice home mothers. Safe arrival guaranteed. Address all orders to B. C. GRIFFITH, Griffith, N. C. Postoffice order on Charlotte, or reg. let. to Griffith.

Please mention this paper.

## PACIFIC-COAST Fanciers' Monthly.

Have you seen it?

**FOWLS, DOGS, PIGEONS,  
PETS, ORCHARD, HOME:**

It is devoted solely to such subjects. It is beautifully illustrated, is


**BRIGHT, PRACTICAL, HANDSOME,  
AND MONEY-MAKING.**

Not an ordinary poultry paper. Send 10 cts. for a sample copy, or \$1.00 for a full year; and if you don't say it is worth a good deal MORE than that we will refund your money. **TRY IT!**

Address:

7-9d

**THE FANCIERS' MONTHLY,  
SAN JOSE, CAL.**

 In responding to this advertisement mention GLEANINGS.

# 1891. 12th Year.

## HEADQUARTERS IN THE SOUTH

For the manufacture and sale of  
**BEE-HIVES AND BEE-KEEPERS' SUPPLIES,**  
Early Nuclei, and Italian Queens.

Send for Price List.

**P. L. VIALLOIN,**

1tf d

**Bayou Goula, La.**

Please mention GLEANINGS.


## IMPORTED QUEENS.

In May and June, each.....\$2.00  
In July and August, each.....1.80  
In September and October, each.....1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens by express will be accepted.

**CHAS. BIANCONINI,  
Bologna, Italy.**

1-11d


 In responding to this advertisement mention GLEANINGS.

## ELLISON'S EARLY QUEENS AND BEES. ALL ITALIANS.

1 Untested Queen, April, \$1.00; May, \$1.00.  
3 " Queens, " 2.75; " 2.50.  
1 Tested Queen, " 2.00; " 2.00.  
3 " Queens, " 5.00; " 4.00.

Very best Select Tested for breeding. \$3.00.  
2-frame Nuclei, with any queen, \$1.50 extra.  
Safe arrival guaranteed. 7-8-9d

W. J. ELLISON, Catchall, Sumter Co., S. C.


 In responding to this advertisement mention GLEANINGS.



A glimpse of our Factory, now making carloads of Dovetailed Hives, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale, or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices**. Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

**E. KRETCHMER, Red Oak, Iowa.**

 In responding to this advertisement mention GLEANINGS.

## ENTOMOLOGICAL NEWS.


This is the title of a monthly magazine published in Philadelphia at **one dollar** a year. It is managed by practical entomologists, and is a real help to those interested in this most fascinating study.

Insects accurately named for subscribers, and much valuable assistance given collectors.

**GIVE IT A TRIAL.** Address


**E. T. CRESSON, Treasurer,  
Box 1577, Philadelphia, Pa.**

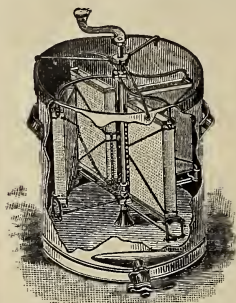
7-9d

 In responding to this advertisement mention GLEANINGS.

## BEES & SUPPLIES FOR IOWA.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address **Oliver Foster,** 5-tfdb Mt. Vernon, Linn Co., Iowa.

 In responding to this advertisement mention GLEANINGS.



5tfdb

Please mention this paper.

**EVERYTHING  
USED BY**

**BEE-KEEPERS.**

**EDWARD R. NEWCOMB,**

Pleasant Valley, N. Y.



CATALOG  
FREE

**Established 1878.**

**SMITH & SMITH,**

Wholesale and Retail Manufacturers of

## BEE-KEEPERS' SUPPLIES.

**KENTON, OHIO.**

**Price List Free.**

4tfdb

Mention Gleanings.

## DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.


Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address

**DR. G. L. TINKER,**

21tfdb

**New Philadelphia, O.**

 In responding to this advertisement mention GLEANINGS.


## Bee-Keepers' \* Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. **Catalogue sent free.** Reference, First National Bank, Sterling, Ill. Address

**WM McCUNE & CO.,**

**Sterling, Illinois.**

21-20db

 In responding to this advertisement mention GLEANINGS.





Published by A. I. Root, Medina, O.

Vol. XIX.

APRIL 1, 1891.

No. 7.

## STRAY STRAWS

FROM DR. C. C. MILLER.

MARCH 14, 1° below zero!

FEED, FEED, if the bees need.

THE FIRST two weeks of March were the severest of the winter.

SEPARATORS, according to replies in *C. B. J.*, are not so popular in Canada as on this side.

TEN CENTS' WORTH of honey contains more nutriment than 50 cents' worth of fat pork, says Allen Pringle in *C. B. J.*

THE banmy breeze of spring  
Is now upon the wing.  
When bees will sting  
Most any thing.

"THE BEE-KEEPERS' UNION," says Jas. Heddon in *A. B. K.*, "will soon take out a patent in the shape of a trade-mark." I believe in patents, but not in that one.

AND NOW E. R. Root has gone and written a piece which Hutchinson has printed in the *Review*. If that sort of thing isn't stopped, the rival editors will get to be friends yet.

A HUNGRY QUEEN, I am somewhat inclined to believe, is more easily introduced. She's so much engaged trying to get something to eat that she doesn't go around raising a row.

HEDDON THINKS (*A. B. J.*) that, if the trade-mark problem is abandoned, there is "nothing better than to keep still," and let adulterators have their own way. James, you're off.

DOOLITTLE suggests that the reason I did not succeed with his cell-cups was that I did not make the cups as deep as directed. I think it quite possible that he is right, and I'll try again.

DOOLITTLE says, in *A. B. K.*, "There is no time in the whole year that it pays as well to put a little money in feed for bees, where they need it, as it does at this time." Doolittle's head is level.

CONTRACTION. I was somewhat surprised to see the editor of the *Review* say, "With an eight-frame hive I have seldom found it advisable to contract the brood-nest of an established colony." But he adds, "I would contract the brood-nest of a newly hived swarm."

AND NOW No. Two (*C. B. J.*) wants to know about "closed frame friends." Out west is a family by the name of Frame, familiarly called the Frame friends. When they get too much tangle-foot, and are shut up in the calaboose, they are then called "closed Frame friends."

THAT DESCRIPTION of the cut on page 174 pretty nearly beat me. Finally I made it out by putting B for D, making it read, "B is a hollow point, etc." But it isn't up to A. I.'s usual clearness.

REV. W. F. CLARKE continues to quote me as authority for the statement that he is long-winded, although I've said I didn't say it. If he keeps it up much longer, I may begin to think what I haven't said.

THE ILLINOIS STATE BEE-KEEPERS' ASSOCIATION has been incorporated. The first meeting was held at Springfield. The State Legislature is to be asked for \$5000 to help the bee-keepers' show at the World's Fair.

HUTCHINSON says he, Dr. Mason, and others, always read the editorials first. That's no way—at least not in GLEANINGS. Always begin at the first page. If you begin at the editorials, you might forget to read the first page.

MACPHERSON, of the *C. B. J.*, has been laid up with concussion of the brain from a fall on the ice. Hope not for long. No Mac and no "pollen-grains" in *C. B. J.* makes a bad hole. "Observer" and "No. Two" live up the pages of the *C. B. J.* no little.

"BOTHER THE SALT!" That's what you say when it's all packed together and won't shake out of the salt-cellar at the table. Let me tell you how to fix it. Put about a teaspoonful of corn starch in a teacup of salt, and mix. That's the way it is on our table, and it always yields.

KEEP TOOLS BRIGHT. I once saw a seedsman care for his hoe after using it. He washed it off clean in a pail of water, and then, without drying it off in the least, he stuck it in a barrel of wood ashes. "There," said he, "no matter when I want to use that hoe again, I'll find it dry and bright."

SOMETHING will have to be done pretty soon about the editorials in GLEANINGS. They're getting to occupy altogether too much room, and are covering so much ground in an interesting manner, that in a little while I'll have nothing to manufacture "Straws" from. Something will have to be done.

L. D. STILSON, of the *Nebraska Bee-keeper*, had a colony which worked on red clover when others did not, and wants to know if any one else has had a like experience. He forgets about the red-clover queens of Medina and elsewhere. One year I had at least two colonies storing white honey when all the rest were storing buckwheat.

E. L. PRATT, in *Apt.*, thinks I'm off in recommending full sheets of foundation in all cases—thinks I'm "old enough to know better

than to hive new swarms upon all full sheets of foundation." He's rather got me there, for I really don't know much about new swarms—don't hive one a year. Still, if I did hive one, and had to use full sheets or empty frames, I believe I'd be so afraid of drone comb that I would use full sheets (if I thought brother Pratt wouldn't find it out).

MY THANKS are due Mr. S. Corneil for calling my attention to an error of mine. I said Cheshire denies that contaminated honey may be a cause of propagation of foul brood (p. 156). I was wrong. He says he has never, by the most careful search in the worst cases, found the bacilli in the honey, and has discovered that it is impossible for bacilli to multiply in honey; but he says, further on, that they "must occur in honey as an occasional contamination," and, still further, says, "My strong opinion is, that, commonly, neither honey nor pollen carries the disease, but that the feet and antennæ of the bees usually do."

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## GENERAL CORRESPONDENCE.

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### PREVENTION OF SWARMING.

#### THE EFFECT OF LARGE BROOD-CHAMBERS, EMPTY COMBS, AND THE ARTIFICIAL REARING OF QUEENS, CONSIDERED.

On page 168, Mar. 1, in answer to C. W. Dayton, Ernest says: "An unlimited capacity is quite apt to discourage, if not to prevent entirely, all swarming. Neither Mr. E. France nor the Dadants, who work on this latter principle, have swarming to any extent, and they do get the honey, you know." Now, we may admit at the outset that contraction tends to heighten, and expansion to lessen, the swarming instinct. Also, the facts concerning the Messrs. Dadants and France are no doubt true. But in drawing your conclusion I think you assume too much. Are you sure there is no other immediate cause to produce the effect? I think there are two entities that conspire to produce non-swarming, so far, at least, as the Dadants are concerned.

#### WHY THE DADANT BEES DON'T SWARM; NOT LARGE HIVES, BUT RACE OF BEES.

One is, that they have developed a rather non-swarming bee. The other is a secret that I learned from Mr. J. M. Hambaugh, whom I met for the first time in Springfield last December. We were discussing large hives, and working for extracted honey, in connection with the prevention of swarming. I referred to the discussion of the causes of swarming, conducted in GLEANINGS in 1889, by Dr. Miller and others. I wish you would look up the papers on pp. 412, 444, 530, 581. When I gave the gist of their views as outlined further on, Mr. Hambaugh acknowledged that they were about so. I then asserted that plenty of surplus room above, with sections all the way from empty to nearly completed, even over a large brood-chamber, would not prevent swarming, as I had often proven to my entire dissatisfaction. He readily agreed that such was the case. How, then, could the Dadants prevent swarming, as they never extract from the lower story? Then it was that Mr. Hambaugh said the reason, perhaps, was that their apiarist kept a close watch, and, as soon as the bees began to get a little crowded for room, he would raise the super and clap on a box of empty combs. I said, "I suppose, then, the idea is, that an entire super of empty cells, ready to rush the hon-

ey into, keeps the bees occupied and satisfied, keeps the honey out of the brood-combs so that they never become crowded, and thus keep down the swarming impulse." He replied that that was about it.

Now, please do not conclude that I am assuming too much. Just wait till I get through. Here are two propositions, as I have given them, worth thinking about, and I ask you to please follow me as I briefly discuss them. Let us see whether there is not a great deal more than mere capacity involved in this subject.

First, we must remark that, in simple terms, it is natural for bees to swarm. It is nature's plan to fill the earth with bees. To bring about swarming, the Author of nature has enacted certain laws. Here are some of her laws; and, for the sake of brevity, I quote or adapt from the series of papers I have mentioned, without further reference:

"The swarming impulse is the general restlessness of prosperity and enterprise, and the consciousness of powers within, which are not being fully occupied." The thing that most induces swarming is a "turgid condition of the vessels in the bee-anatomy in which are stored the supplies for future brood-rearing." This turgid condition is due to the fact that there is an undue proportion of house-bees to brood requiring feed, caused by the bees storing honey in the brood-nest. Meanwhile, this state of things causes a check of egg-production, which in turn causes the blood of the queen "to assume a peculiarly enriched character"—intensity, I should say. These are some of the conditions that impel bees to swarm out—a sort of hydraulic pressure.

I cite these views because they appear to me so evidently correct. If honey could be kept out of the brood-nest, and really allow the queen unlimited capacity, this state of things might not occur. But we know too well, that, when honey is coming in to any great extent, if there is no store room above, except as the bees build combs they will store it in the combs below—aye, and seal it up too. Who, that has often examined a brood-chamber which a swarm has lately left, has not generally found a preponderance of sealed brood, freshly sealed honey in the outskirts of the brood-nest, and many cells, singly and in groups, amid cards of sealed brood, filled with honey? This crowds the field-bees, and adds another element of discontent. It is altogether a cramming, crowding, pushing, driving process.

Now, don't you see where the value of empty combs comes in? Why, there is a vast system of storehouses above, already built, ready to garner the inflowing riches. And what can make a field-bee happier than a copious flow of nectar and plenty of room to receive it? It is not the disposition of bees to hamper the queen. That bees, when given combs above at a time when they are crowding the brood-nest with honey, will remove it and store it above, even much of that which they have already sealed, I have ample proofs. Hence the queen is allowed her full capacity; and to feed the larvæ, carry the honey above, ripen and seal it, seems to give the house bees sufficient employment. Thus the swarming fever is allayed, or prevented altogether. Does it not all look reasonable, probable, all but certain? This system, over a small brood-chamber, might not avail to prevent swarming; but I am very certain that a large hive, and working for comb honey, would not do it.

Mr. F. S. Wallace, of Clayton, Ill., like the Dadants, is troubled very little with swarming. I had several of his queens in my apiary last summer, and not one of them exhibited any disposition to swarm, although two of them were



run for comb honey, and one of them never saw more than six frames. Such bees are apparently of more contented disposition, less aggressive and enterprising, and therefore, perhaps, if the truth must be told, of less account than the bees of the opposite kind. GEO. F. ROBBINS.  
Mechanicsburg, Ill., Mar. 10.

[You have given us a good article, and I hope your position is right. Still, it does not seem to me that the two factors of race of bees and the giving of empty combs at the right time would account entirely for the non-swarmling of the Dadant and France bees. You know, that, where bees have unlimited capacity in garrets, they do not swarm much.

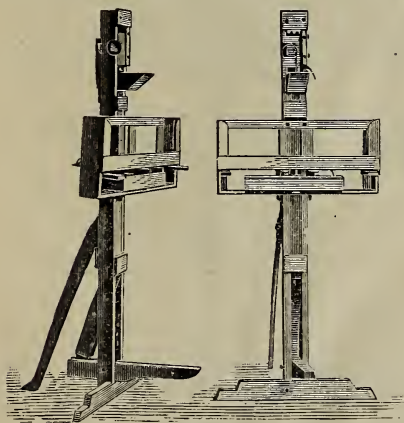
I should like to have the Dadants and Mr. France enlighten us further as to their methods, and how much of a figure their large hives cut in the matter.] E. R.

### PHILO'S SECTION-GLUING MACHINE.

A MACHINE THAT PUTS TOGETHER AND GLUES SECTIONS AT THE SAME OPERATION.

I inclose a description of my automatic gluing-machine, for gluing and putting together sections, which I hope will be of enough interest to you and the bee-keeping fraternity to publish in GLEANINGS.

About four years ago, in the spring, I found, by the condition of my bees, that it would probably be necessary to use quite a number of sections; and after putting some of them together by hand I thought it would be wise to look up a machine for that purpose; and the only thing I could find was a "Manum machine," which I found in my nearest bee-keeper's shop. After using it a short time I could readily see the improvement over the former way of putting them together with a mallet.



MACHINE FOR GLUING SECTIONS.

The Manum machine did its work very nicely indeed; and the thought struck me, if I could devise some plan whereby I could place some glue right in the little grooves of the dovetailed part of the section, without making any extra motions, the machine would come nearer perfection; and in order to do this I found it would be necessary to change the plan and workings of the machine throughout. I soon had the thing figured out in my mind, and went to work to make a temporary machine of pine, which did its work perfectly; and the same little ma-

chine made of pine has worked for the past four years for three different bee-keepers, to their entire satisfaction.

A year ago last spring I bought 1000 V-groove one-piece sections for a neighbor, and, after looking them over, he concluded he would rather have the four-piece sections; so I had the one-piece sections left; and when I went to put them together I found my machine was not yet perfect—because I had nothing to glue the V-groove with. The next thing in order was to make an attachment that would glue the V-grooves with the same motion of the foot that presses the box together. I did this by placing a rack in front of the machine that will hold forty or fifty strips with the grooves downward.

Under the strips is a glue-pot with a roller in, and three little beveled-edged wheels on it that turn in the glue; and when the dovetailed corner of the box is pressed together, the bottom one of the section strips is pushed over the wheels, causing them to turn in the glue and in the V-grooves at the same time, thus gluing them perfectly.

The machine from which the photo was taken which I send you was nearly all made of wood. I am now making all the small working parts of the machine of metal.

Half-Moon, N. Y., Jan. 30. E. W. PHILO.

[While I was in attendance at the Albany convention last December, my attention was called to the fact that there was a man there who had got one of the nicest machines ever invented by a bee-keeper. I have heard this so many times on other occasions before than I did not think much about it. But shortly afterward I was shown the machine, and was introduced to the inventor, Mr. E. W. Philo, as above. In his hands it certainly worked beautifully. He is a cabinet-maker, and a real genius. Well, I have not tried the machine myself, and it is possible that others could not make it work. Mr. Philo is going to send us a machine, and we hope then to try it.] E. R.

### THE NONPAREIL BEE-HIVE.

ITS MANAGEMENT.

It has become an axiom among bee-keepers of experience, that, the more bees a colony has at the beginning of a honey-flow, the more surplus it will make. So true is the axiom, that the best hive ever made is worth little without plenty of bees at the right time; and it can hardly be the best hive unless it affords facilities for extensive brood-rearing in spring, and the early development of large colonies. And next, after successful wintering, the most profitable bee-keeping will ever turn upon these points. The flowers may bloom, and the nectar flow never so freely; but it will avail the apiarist little profit unless his hives are overflowing with bees at the opening of the harvest.

To get these large colonies, we must not only have protection for the brood against the cold nights and days of spring, but we can utilize the heat of the sun's rays to very great advantage. The heat absorbed from the sun by an uncovered, well-protected hive, upon a few hours of exposure at midday, will sensibly affect a colony for days afterward. Heat has been said to be life, and the sun's rays do certainly stimulate the life energies of both the queen and bees when applied in the manner stated.

Thus, we may promote extensive brood-rearing as well as the economical use of the stores, which will go much further where proper protection and care are given. I have estimated that a third more brood and bees can be obtain-

ed, at a saving of at least 10 lbs. of stores to every colony in spring by the management advised.

The protection given is by packing the brood-chamber in the winter case with excelsior sawdust, chaff, or forest-leaves. But it should be steadily borne in mind, and not forgotten for a moment, that any packing that may be used must be kept dry. Active brood-rearing in spring causes the packing to become damp, which then, instead of conserving the heat, carries it rapidly away, so that the colony would be far better off with no packing at all than a lot of wet material about the brood-nest. Here let me say, I consider fine sawdust one of the worst things that can be used, either in winter or spring, for protecting bees, and all because it will get damp, and can not be readily dried out. The packing must be of some coarse material that the air can readily permeate, and two or three inches of such packing is enough.

#### UTILIZING THE SUNSHINE.

To get the full benefit of the sunshine, the hive-covers should be removed every pleasant day about 10 A. M., when the bees can fly, or at least every few days, and the packing on top of the brood-chamber taken out, as well as any that may be found damp at the sides. The sun should be allowed to strike full upon the covering of the brood-nest, which I prefer to be a thin ( $\frac{1}{4}$ -inch) board, cleated at the sides, placed a bee-space above the frames. About 4 P. M. the packing and hive-covers must be replaced.

Now, all this seems like a great deal of labor; but with light covers, and the use of excelsior, I find that it requires only about half an hour each day for the care of 50 colonies, and I do not think that in any spring my hive-covers and packing have been removed to admit the sunshine on more than ten days.

The extent of brood-rearing by this management by the average colony is considerably beyond the capacity of the hives in common use. In fact, the average queen is capable of occupying 1400 square inches of brood comb with brood, while the ten-frame Langstroth hive will contain but 1350. But there is required also two or three hundred square inches of comb

The spring management of bees requires care and attention, aside from the foregoing, that they have plenty of honey or its equivalent—sugar syrup. Every colony should have at least 10 lbs. on hand all the time up to near the time for the honey-flow to begin. Unless this is attended to the brood-rearing will be limited, and all the care given will prove unavailing in getting large colonies by the first of June, when the harvest usually opens in this locality. For spring feeding, Cutting's atmospheric bee-feeder is probably the best in existence. It may be used at the entrance, or over the brood-chamber. It is best used at the entrance to stimulate brood-rearing. No robbing or daubing or drowning of bees can take place, and I am surprised that an invention so useful and handy as this one should not be more extensively used.

Owing to the fact that, in a two-storey hive, the bees always begin brood-rearing in the upper storey in the spring, the progress of the egg-laying of the queen is the same as in the old box hive. No spreading of the brood or fussing with the brood-nest is ever necessary, except where building up a colony in adding a second storey. By the above management our colonies will have from 70 to 80 thousand cells of brood at the opening of the harvest, instead of only 40 or 50 thousand possible in the common hive; and every expert bee-keeper knows what this will mean. My next will tell how to get comb honey. DR. G. L. TINKER.

New Philadelphia, O.

*To be continued.*

#### THE BRICK RECORD.

##### CARNIOLANS.

The article by C. A. Hatch, Feb. 1, reminds me of one of many neglected duties; viz., calling attention to this method of keeping a record of the apiary. I have practiced it for about six years, and will testify to its great value. The great advantage it has over others is, that the apiarist can stand in one spot, and, by simply casting his eyes along the line of hives, see at once its condition; and if he sees a swarm emerging from a certain hive, he knows at once



MORRISON'S METHOD OF KEEPING RECORD.

for the stores of honey and bee-bread, so that the capacity of the brood-nest for the best results in spring breeding should not be less than 1600 square inches of brood comb. As the common eight-frame hive will contain but a little over 1000 square inches of comb, it will be seen that one such brood-chamber is quite too small, and two of them quite too large. When we use two of the Nonpareil brood-chambers in spring breeding we have the requisite capacity. As one storey\* is just right for a swarm for the best results in working for comb honey with a queen-excluder, it is plain that the proper remedy for the eight-frame hives in use is to cut them down so they will take a 7-inch brood-frame; then make winter cases for them, and bee-keepers will speedily get on the road to profitable apiculture.

\* Dr. Tinker requests this spelling.—ED.

whether it is a first swarm or an after-swarm. If it were not useful at all as a sign, I have always considered a brick on the lid of a hive a necessity to keep the lids from blowing off in high winds; and in queen-rearing, of importance in preventing nucleus hives from blowing over. My method has required but one brick, and I will give you here the different positions of the brick which I have found to answer every requirement, either for a honey apiary or a queen-rearing apiary.

##### FRONT OF HIVES.

No. 1, brick parallel with and on the rear end of hive, "Has fertile queen, and in working order."

No. 2, brick on rear, and at 45° angle, "Queenless."

No. 3, brick in center, parallel, "Gave queen or cell."



No. 4, brick on front, at 45°. "Queen accepted," or "Cell hatched."

No. 5, parallel on front. "Swarmed."

No. 6, parallel on edge or front. "Queen-cells."

No. 7, brick on end. "Immediate attention: needs feed; take honey; fertile workers."

No. 8, edge across rear of hive. "Neither queen nor brood."

Besides this, on one corner of the lid, in small letters, I keep such a record as this: "Tested queen, June, 1890." "Swarmed June 1, '90." "Removed queen May 10, '90." "Larva given, May 28, '90." "Give 1 qt. syrup." Each season these lids are freshly painted, and a new record begun; but the age of the queen is always preserved.

It is scarcely necessary to give any system of using the brick as a sign, only to illustrate the method; for if any one will only begin by using a brick in one position to indicate one thing, all the system needs to indicate every thing the bee-keeper desires will follow in turn.

#### CARNIOLANS.

I am not now and do not expect again to be in the queen-rearing business. Having also sold my entire apiary of Carniolans at Oxford, Pa., I can now give my opinion of Carniolans as a disinterested person: The only fault that has been urged against them with any show of reason at all is, that they swarm too much. Well, the same has been charged to every other race with just as good reason, as I well know from experience. I am very sure it is a more prolific race, and they are better honey-gatherers. Give a colony twenty, or, better, thirty brood-combs in a Simplicity hive about the middle of April, and on the first of July extract all, and compare with any other race as to honey gathered; and if the start was fair, the product of the Carniolans will be ahead.

S. W. MORRISON.

Colorado Springs, Col., Feb. 6.

#### DAYTON'S QUEEN-RESTRICTOR. AGAIN.

##### DAYTON'S REPLY.

If I remember correctly, I sent to you two articles—one upon the queen-restrictor, and the other upon contraction alone. You published my article on contraction, gave the illustration of the restrictor, and, in the foot-notes, wrote in reference to the restrictor from a contraction view, and not from a restrictor view, as you may see from my references. What my article said about contraction doesn't do justice to the restrictor.

You say (in foot-notes, p. 168). "It is considerable of an art to manage so as to make contraction a real benefit," which I agree to; but I think that, what is art or science now, will, by use and practice, become ordinary, and not be deemed as extraordinary. The earlier the study is begun, the sooner learned.

You say, "An unlimited capacity is quite apt to discourage, if not prevent, all swarming."

You did not notice that the restrictor is provided with a reversing device wherewith the queen-cells may be inverted to prevent swarming by their being destroyed before they are mature. My restrictor is reversed the same as your single combs are reversed—the five combs being handled (and even may be considered) as one comb. Forty colonies may be thus manipulated in the space of one hour. If the frames were inverted singly it would require four hours for forty hives.

You ask whether my restrictor "is not a good deal of work." You have the queen-cells,

queen, etc., all in a shape so as to reverse with the same labor that is required to reverse one single reversible frame.

Reversion causes as much brood to be reared upon my five frames as is usually contained on seven or eight; and this brood is mostly included in the restrictor.

You appear to think that my zines between the top, bottom, and end bars are numerous, and require taking off often. When the frames and zinc strips are once put on they are *almost* never removed; but the *side sheets* are easy of manipulation, and require adjustment once each year—just before and after the harvest. A bee-keeper visited me a short time ago, to examine my restrictor, and said:

"Why, Mr. Dayton, it would be a great deal of work to take off and put on these *hoop-like* strips of zinc often."

I asked, "Why would you take them off?"

He answered, "To find the queen."

"What would you want the queen for?"

"To clip her wings."

"Why clip wings?"

"To prevent her going off to the woods."

"How could she get out of the cage to go to the woods? and how could bees swarm when the reversion of the combs destroys the queen-cells?"

"I did not think to study that out. Why, you would never have a swarm in the world, with such an arrangement."

Let the queen remain unclipped. The restrictor will reverse quicker than you could clip a queen's wing, even if you have her already caught.

In the notes, the Dadants and Mr. France are quoted as using unlimited space. But you forget that they are principally producers of extracted honey—when reversion, contraction, and exclusion, are more applicable in the production of comb honey. Mr. O. O. Poppleton was the most successful honey-producer in my locality—using a 26 or 30 frame hive for extracted honey; but when he changed to the production of comb honey there was a very great change in the size of his hives, to a small size.

I find no reason for handling brood-nests frame by frame, but all together—several frames at once. This handling the frames severally, by learners, is more curiosity than necessity.

As to Heddon hives being less labor, it is as easy to attach my sheets of zinc as it is to put on the honey-boards you speak of; and my plan enables me to retain the old suspended frame as Mr. Langstroth gave it to us, which is the frame in size or form that will outwear and outweigh any other frame that will ever be invented.

C. W. DAYTON.

Clinton, Wis., March 20.

[The first paragraph calls for explanation. By an oversight, the engraving appeared with the contraction article rather than with the one on queen-restrictors. As the latter did not appear, and as the former *involved* the subject of restrictors, I concluded that the cut belonged to it.

I am very glad to give place to Mr. Dayton's article, as above. As it covers most of the points brought out in the other article, it will be sufficient. I thoroughly indorse the idea that he emphasizes in the next to the last paragraph; namely, that there is "no reason for handling the brood-nest frame by frame," and that they should be handled "all together—several frames at once." Mr. Heddon deserves credit for emphasizing a similar plan. In a majority of cases, with the Hoffman frame, and also the closed-end Quinby, I am satisfied that a satisfactory knowledge of the interior of a hive may be obtained by handling three or four

frames at a time—that is, I mean in the production of honey. I have no doubt that friend Dayton can get along in a similar way with his restrictor.

If my memory serves me right, it was decided in the Question-Box that reversing does not invariably destroy queen-cells. How is this, friends? E. R.

### KEEPING A RECORD OF QUEENS.

FRIEND M'INTYRE TELLS US HOW HE DOES IT.

Californians have been feeling a little blue for a few months on account of the absence of rain, hence a scarcity of articles from this quarter. The rule is, no rain, not any thing—not even words; but we have just had 8 inches of rain in 36 hours; and although bridges and roads are washed out, and trains stopped, the faces of the people wear a smile. We can go to work now with some heart, to prepare the bees for the coming season. Clean up your apiary and make it look nice before commencing to overhaul the bees. You will feel happier at your work if the surroundings are pleasant. I find every queen in my apiary in the spring, before the bees get very strong, and clip every one not clipped. I know positively, that every queen found without her wing clipped was reared last season, and mark her in my record-book as one year old, although her birth-day has not arrived yet. The age of every queen found with her wing clipped is advanced one year; and those marked two years old are usually superseded near the close of the season.

Hive No.	QUEEN.			REMARKS.	C'hs	br'd	Lbs	h'n'y
	Str'in	Age.	Gr'de					
1	S.	1	x	Breed.	6	33		
2		1	x	Hybrids.	4	20		
3		1	1		4	20		
4	F.	1	x	Breed.	5	20		
5	G.	1	x		5	20		
6		2	x	Feeble.	4	20		
7	A.	1	1		4	20		
8		2	1		4	25		
9	H.	1	x		5	33		
10		2	x	Crippled.	4	20		
11	H.	1	x		4	25		
12	A.	1	x		5	30		
13		2	1		6	20		
14		2	2	Dark.	4	20		
15	S.	2	x	Breed.	7	30		
16	O.	2	x		6	40		
17	H.	1	x	Breed.	5	36		
18		1	1		3	20		
19		1	1		5	20		
20	O.	2	x	Breed.	7	30		
21		1	1		5	5		
22		1	1	Hybrid.	4	30		
23	H.	1	x	Breed.	6	40		

This is a page from my record-book, and contains all the record of queens I care to keep. It is small enough to carry in my pocket. When I had few colonies I kept a larger book and gave more space to each colony—often a whole page. As my apiary increased, my record decreased until I got a whole row of 23 hives on one page. My apiary contains 22 rows, and each row is lettered. When I wish to find the record of a certain queen, I place my thumb on the letter on the margin of the book corresponding to the letter on the row, and open the book instantly at the right place. Every hive is numbered. The numbers run from 1 to 23 in each row, and are kept on a piece of board 4x10, driven into the ground by every fourth hive. The letters representing the row are also on the stakes just

above the numbers. The page almost explains itself. The different strains are marked with letters—S for Syrian, H for Root's honey strain, etc. The next column gives the age, 1 or 2 years. I often keep breeding-queens three years. The next column gives the grade or quality. I make 4 grades—X for extra, 1 good, 2 medium, 3 poor. Remarks explain themselves. The brood and honey columns only serve to equalize in the spring, and are not kept up through the season. I should take 20 lbs. of honey from No. 6, and give it to No. 21, and a comb of hatching brood from No. 20, and give it to No. 18, and that row would be all right.

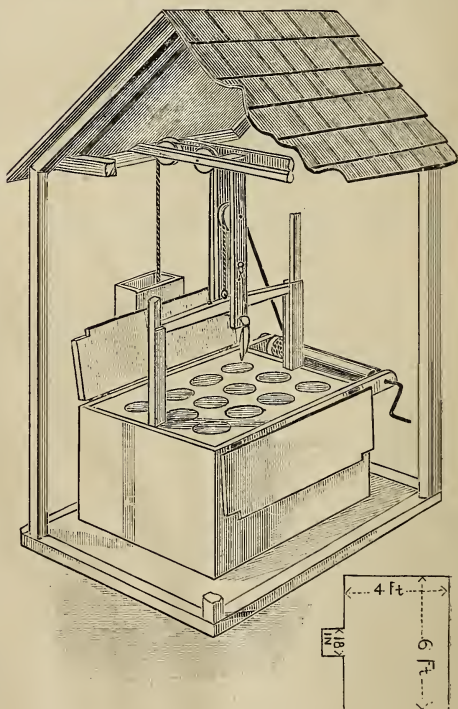
I have a system of book memoranda for queen-rearing, which suits me much better than slates, cards, stones, or bricks, on the hives. My apiary is 150 feet wide and 300 feet long, over an acre, and it takes too much time to find the colony that needs attention by any system of marking on the hives. But I can write about any thing better when I am working with it; and as this article is already long enough I will leave it for another time. J. F. McINTYRE.

Fillmore, Cal., Feb. 24.

### A DAIRY WELL.

HOW TO MAKE ONE.

I have never been north, and I don't know what the needs of the people are on the farm; but I do know that every Southern farmer needs



A SUBSTITUTE FOR ICE-HOUSES AND REFRIGERATORS FOR WARM CLIMATES.

what I have termed a dairy well. The originator of the idea is Mr. Wm. Bibb, of Westminster, S. C., formerly of Bartow Co., Ga. I am aware that this is a little out of the line of a bee-journal; but milk is closely associated with honey, in the Bible, and, in fact, I like them



pretty closely associated at the table, with a little butter thrown in. Besides milk, this well is good to keep pork or other fresh meat in, in summer, away from flies; also to keep any thing from freezing in winter.

For ordinary use the well should be dug 6 ft. by 4 square, with a gutter, or groove, down one side, 18 inches square. It should contain two or three feet of lasting water. It should be in easy reach of the kitchen, and attached to the house if possible. The curbing should be no larger than the well. A platform, which fits inside of the well, slides up and down between two timbers, which rest on the bottom of the well, and are long enough to reach up 3 ft. above the curb. These two timbers should be planed. The framework of the platform has a board nailed on each side of it, forming a groove which fits on the upright timbers at each end of the well. This makes it rigid, and keeps it level. The circular black spots on the platform represent openings for vessels. The piece that holds the wheel, over which the rope passes to the windlass, is prolonged so that, when the platform is just even with the top of the curb, an iron pin is inserted through it and the top-bar of the platform frame, and holds it there. There is another rope, and two wheels. This rope has a heavy weight attached, to assist in raising the platform from the bottom of the well, with heavy loads. These weights go down into a box formed of four wide planks, which occupy the gutter, or groove. One lid opens up against the weight-box, and fastens with a thumb-button. The other is hinged so as to hang down by the side of the curb when open.

I think what I have said, and the sketch, will make it plain. R. W. J. STEWART.

Sonoraville, Ga., Feb. 2.

[Friend S., you have given us something of very great value, I am sure. The custom of letting down a pail of butter and other kinds of food into the well, to keep them cool, is almost as old as the hills, and I have several times wondered why somebody did not invent a dumpy or elevator to run provisions into the cellar, or, still deeper, into a well, where ice is not to be had, or is inconvenient; and most farm homes find it a good deal of trouble to have an ice-house simply for their own use. It is my opinion, however, that, to have the water real cool and nice, it should be used for watering stock or something of that sort. I saw a statement recently in one of our agricultural papers like this: A certain well gave such cool nice water that it had a reputation for some distance around. As this well was close to the house, however, and some distance from the barn, the owner dug another one by the barn, for greater convenience in watering his farm stock. As soon as they stopped drawing heavily on the water near the house, however, it began to get warm and insipid, and the water at the stables improved in the same proportion as they began to draw on it. This taking water away, or removing it from the well, produces a running stream or running spring. Of course, the cheapest way to get this superfluous water out of the way is to do it with a windmill, providing you can afford the first expense. By the way, friend S., why would not the arrangement you have given us take the place of a cellar to a considerable extent, and at the same time save the good wife the labor of running up and down stairs? Another thing: A good many have discovered that rain water is more wholesome for them than the hard water from many of our wells; therefore you can catch your rain water from a roof in clean vessels, and then let it down into a deep well to cool.]

## DEACON HOMESPUN AND HIS "KNOWIN' BEES."

ALSO SOME OF THE DEACON'S PLAIN-SPOKEN OPINIONS IN REGARD TO "BRO. RUTE."

Having been a reader of GLEANINGS for the last 13 years, I have become very much pleased with it and attached to it, and I often recommend it to others, and have now and then induced one to subscribe for it. But I found one who did not want it at all. I went over to Deacon Homespun's to make a call, see his bees, and I naturally asked him to take GLEANINGS. He said that he did not want it, for the reason that he had decided "not to read any more of Rute's writing till he wrote something kinter interestin'."

I remarked that I considered it all *very* interesting. Well, he said that he "had got Rute's A B C book, and did not think much of it."

"Why have you arrived at such a conclusion about the A B C book?"

"Wal, ile tell you. Now, he says a great deal about interducin' of queens; and I don't think much of his way, for I have got a way that beats it all holler."

"Now, deacon, have you any objections to telling your plan of introducing queens?"

"No, sir, I hain't. It is this: When you have a queenless colony, jest hang in a keard of brude, and the bees will raze a queen right there in the hive. Now, don't you see that this way will save all this fussin' about interducin'?"

"Yes, deacon, that is very true. You can get a queen in a hive by placing in the hive a card of brood, and the queen will hatch there and *be there* without much trouble, etc. But you see the honey season is short; and while you are waiting for your queen to hatch and get ready to lay, much valuable time is lost so far as *that* swarm is concerned; for, you see, it takes about a month after the queen commences to lay before her bees are ready to work; therefore by that time the swarm will be very small, and be of little profit to you for that season, for the old bees are all the time dying."

"Well, that ain't the case with *my* bees—they don't die off fast at all."

"What kind are your bees?"

"Well, they are a mixture of bees from the Southern States, with *my* kind. You see, a few years ago I lost most of my bees, and in the spring I sent south and bought some to make up my loss in the winter."

"Did you get *queens* with your bees from the South?"

"No, I only jest got bees, and put with mine. I *had* queens."

"Well, don't you know that the bees you had from the South soon died, and therefore you had only *your* kind as you had before you bought?"

"Now, deacon, I see you have the two-story Root chaff hive. How did this happen?"

"Well, you know I told you that I had Rute's A B C book, so I took the book to a shop in town and had all of my hives made accordin' to the book."

"Well, then, you *do* think something of Mr. Root's writing, after all; so I will leave a copy of GLEANINGS with you; and when I come again I hope you will have decided to have it mailed regularly to you."

As I handed it to him he said, "I think that Rute is a kinder of a big *I* and a little *u*," at the same time pointing to the foot-notes.

"Now, deacon, as to the remarks of Mr. Root that you now refer to, I think I can say, without fear of contradiction, that his readers would not have that part of the matter left out on any account. But, again, in regard to the chaff

hives you use, I see you have them all numbered on the front side with large figures, which I consider a good plan on several accounts. One is, if you wish to refer to any one hive you can do so by its number."

"Wall, I will tell you what I had it done for. It was so the bees could tell their own hives."

"I don't know, deacon, that I fully understand you. Now, there is 22 and 23 side by side; do you think your bees can tell 22 from 23?"

"Well, I don't know about *your* bees or *other* folkses; but *mine* can tell 22 from 23 *every time*. My bees know more than you may think they do. They know me when I come around, every time. Sometimes I lay down on the grass, watchin' for them to swarm, and sometimes a bee will come and buzz all around me. They will look in my *eyes* and in my *ears*, and look me *all over*; then they goes away. Sometimes when I am comin' from town they will come and meet me, and fly all around me."

"Well, I shall have to bid you good-by; but I want you to read GLEANINGS; and when I call again I hope you will like it well enough to subscribe for it." W. S. WRIGHT.

Battle Creek, Mich., March 18.

[Friend W., will you please make the deacon a present of GLEANINGS for a year, and tell him that "friend Rute" sends it willingly as a return for his very candid and outspoken opinion? By the way, that last expression of the deacon's is a gem. I can imagine every reader of GLEANINGS, who has had a few summers' experience, leaning back in his chair and taking a good hearty laugh about those "knowin' bees." Sometimes they meet us on our way home, and look into our eyes and ears with more inquisitiveness than is really comfortable; but if the deacon enjoys it, we are very glad.]

#### NOTES ON RECENT DISCUSSIONS.

COARSE WIRE CLOTH OVER ENTRANCE IN WINTER, BY REV. T. C. POTTER.

A recent question propounded to the Solons of the apiarian fraternity, was as to whether it is advisable to use wire cloth over the entrance, when wintering in the cellar. After an experience of ten years with a small number of colonies each year (I can handle only a few and be faithful to my regular duties), I am led to the belief that bees winter nicely in a dry cellar when coarse wire cloth is used over the entrance. About putting it across the bottom and top, I can not say; but in my own case I have never taken either bottom-board or cover off. Simply put a good, dry absorbent cushion over the frames, lay the honey-board over it to keep it smoothly down, adjust the cover, bend a length of wire screening to fit the entrance all along, and it is done. At any time if you wish to feed at the entrance, as spring approaches, slip the screening away and lay your feeder there. I have found only a little feed necessary in spring, to start the queen to laying. For two weeks before the date of this writing, our thermometer has been about zero every night; and yet upon examination I find that I am well stocked with brood. I have never lost a single colony, nor observed any but good results. Fixed thus, they have plenty of air, do not ramble out and die on the cellar floor, and the mouse-pest question is settled. Extensive apiarists may find a removal of the bottom-board necessary to crate the hives rightly in the cellar; but for those having only five to twenty colonies, like myself, it is not necessary. If there are some dead bees on the bottom-board, as there usually are, I simply keep a bent hook

of wire, and, removing the screen occasionally, draw them out.

ARE CELLAR-WINTERED BEES MORE SENSITIVE TO THE COLD WHEN SET OUT IN THE SPRING?

I believe it to be a little more than a notion, that bees wintered in the cellar where the thermometer ranges from forty to fifty will be more sensitive to cold and changes when taken out in the spring. Apiarists must remember that bees are not like human beings in this respect, and so we can not judge them by ourselves. The good Lord, who has made every thing right for its own conditions, has provided our bees with an instinct as well as aptness for hibernation; and when a cold spell comes they pass into stupor such as renders them largely insensible to the cold or changes. A good hive, plenty of stores, and care upon the part of the keeper, are all the specifications necessary, provided the queen is fruitful and the bees ordinarily numerous.

A PECULIAR EXPERIENCE WHILE WORKING AMONG THE BEES.

For some years I have been studying my own physique as it has been affected for better or worse by my work among my bees. I have found that breathing the strong, acrid odor that comes from a newly opened hive in summer, when there is unripened honey in abundance, gives me a catarrhal cold every time. I call it this, although I can check it at once by snuffing tepid salt water up the nostrils. Without this treatment I should have a "cold in the head" for two or three days. Some one may fancy it is due to getting into a perspiration and then cooling off too quickly. That occurred to me at first; but with experience I have found that it is not due to any thing except the acrid fumes from the bees and hive. Has any other bee man or woman ever observed this effect? It is very quickly and invariably done in my own case, even if I inhale much of the odor from an observing-hive in the house.

AMMONIA FOR GETTING PROPOLIS OFF THE FINGERS.

A lady recently spoke of the necessity for gloves, because of getting propolis on her fingers and under the nails, and having difficulty in removing it. If she will take her bottle of good strong ammonia, and a cloth, and rub gently over the soiled finger, getting some of the liquid under the nail, she will find that this alkali will turn the propolis stain a sunflower yellow in a moment after it is put on. After this treatment, don't be in a hurry, or frightened at that worse stain. Let the ammonia act a moment or two; then wash well with soap and water, using a nail-brush if necessary, and all will come off nicely.

A CAUTION AGAINST CATCHING COLD BY USING THE WATER TREATMENT.

Is it not well to caution your readers about taking cold, after making use of the warm-water treatment, of which you addressed us at length in GLEANINGS for March 1st, particularly if it occurs in the ordinary place out of doors? When hot water is used, perspiration ensues—especially if more than one injection is taken, and absorption through the kidneys and internal membranes is occurring. T. C. P.

Cedar Falls, Iowa, Mar. 14.

[Thank you, Bro. P. I knew all the while when our big guns (begging their pardon) were telling us that wire cloth over the entrance would not do, that they were not quite orthodox. Thanks for your suggestion in regard to propolis, and also for your caution. I have taken cold once in the way you suggest, but since then I have been more careful.]



## OUTSIDE CASES FOR WINTERING.

J. A. GREEN REVIEWS THE MATTER.

If there is one thing more than another that I have felt disposed to criticise in the way GLEANINGS is edited, it is, that, in your foot-notes to articles, you seem to think it necessary to find some fault with the ideas therein presented, and that, under the pressure of this seeming necessity, objections are made, that, while usually real and vital ones, are often unimportant, to say the least. Your supposition that snow would beat under my covers of corrugated iron is well taken. It would be a real objection if it were true; but I am happy to say that I have not had the least trouble from that source. I might, perhaps, if it were not that the cases are filled to overflowing with packing material, upon and into which the corrugated cover is crowded tightly, and then held there.

But when you find fault with the board and stone as too much rigging, I must smile. The stone is all that is really necessary, though there are few bee-keepers who can not easily find some kind of board eighteen inches or so long for each hive, and duplicate them every year if necessary. Some of my covers have a strip  $1\frac{1}{2}$  in., nailed across each end of the sheet. With these the cross-boards are altogether unnecessary, and the stone may be replaced with hooks, or something similar; but I do not like them, as they are more expensive, and because they can not be nested together. With the plain sheets, twenty-five may be stored away out of the weather in the space that one of your covers will occupy. The stone, or its equivalent, I regard as a necessary part of each hive's furniture, summer and winter. I have some large paving-bricks that are a little more ornamental.

When it comes to looks, it may be that my packing-case might be improved upon—at proportionate expense. I must confess, though, that, while I take some pride in the appearance of my apiary during the summer, I do not care quite so much about its looks in the winter. A mantle of snow softens and beautifies all harsh outlines; and if there is none, the severe plainness of the packing-cases is only in keeping with the general bareness and desolation of objects of nature. Still, if the cases are made of better lumber, and painted, they may be made to look very neat.

I doubt very much whether a good cover can be made that will not cost much more than the corrugated iron, especially when durability is considered. Painted muslin may do. I have never tried it; but I think it would be found unsatisfactory, and, in the long run, expensive. Roofing-paper I have tested thoroughly. It is undesirable, except for something cheap and temporary. The material for a tin roof costs as much as the iron, besides the expense of making it.

Your cases, allowing only  $\frac{3}{4}$  of an inch on each side for packing, are not nearly large enough. It is well enough to talk about putting the packing material into a cushion in the shape of a thin ring, to go within this  $\frac{3}{4}$ -inch space; but did you ever try it?

I do not think the "dead-air space" at all practical. Theoretically it is all right when it is a dead-air space; but in practice this can never be secured, and can only be approximated at greater cost than packing. One very real advantage of packing is, that, in the spring, it absorbs heat from the sun during the day time, thus keeping up the temperature of the hive at night. If you want to test this, take two vessels of glass, tin, or any thing you choose. They should be air-tight to make the experi-

ment conclusive. Fill one with sawdust, and leave the other empty. Put them in an oven or other warm place until they are thoroughly heated through; then put them in a cool place and see which retains heat longer.

I have just received a letter from M. M. Baldrige, in which he says: "The Oatmans discarded cellar wintering (say ten years ago), and thereafter left their bees on summer stands, packed in large boxes with chaff on all sides.

... Their packing-boxes were made large enough to hold four colonies, and they had an entrance on each of the four sides. They put up their bees thus very early—say in September or October, and did not remove them from the packing-boxes until June following.

... The Oatmans wintered bees thus for several winters with fine success. They are now nearly out of the bee-business; but if they were to begin again they would pursue the same plan. At one time they had some 700 colonies scattered about the country. ... Their packing-boxes had bottoms, were made of cheap lumber, and cost about \$1.00 each."

The Oatmans, I suppose you know, were very successful honey-producers at Dundee, Ill. They are now owners of several creameries, I believe.

J. A. GREEN.

Dayton, Ill., March 10.

[If I criticise in a foot-note I do not do so for the sake of it. I do not intend to make any criticism unless there is something that appears as a real objection. Very often, to call out further discussion, I enter a criticism in order to get the writer to elucidate a little more fully. I did not do so with that in view in your last article; but whatever the intention was, that foot-note has called forth a valuable communication in defense.

This time, friend Green, I shall have to assume the defensive, as you assume the offensive. You have cornered me up in several places, and I do not really know whether I can get out or not. Now, then, to the points of your article:

I am glad to know, that, while the snow would apparently beat under the covers, it does not in reality. So, my criticism No. 1 is washed out.

About that board and stone. I may be wrong, but I still hang to the point that they make a good deal of extra rigging. I know there are a good many practical bee-keepers who use them. They want them summer and winter. But when you add to the toil of going through the whole apiary, by lifting off a ten or fifteen pound stone for every hive, you add just so much to the cost of producing a pound of honey, to say nothing of the extra labor and wear on the man. We have never used stones in our yard. It is only rarely that we have winds that lift the covers off the hives; and W. Z. Hutchinson, of the *Review*, expresses himself in a similar way. Perhaps this difference of opinion might be explained by locality.

As to looks, I do not know that I would urge that point very hard. Your outside packing-cases, I must admit, are rather pretty than otherwise, although I am opinion that a case such as I have described would look neater. After all, it is not looks, but dollars and cents, we are after, in bee-keeping, so I will yield to you on that point.

Now about that air-space. At first I did not think it was possible to maintain practically a dead-air space; but those outside cases that I described, made of  $\frac{3}{4}$  lumber, and dovetailed, with a tin cover, will, I think, hold water. When they were put together I told the painter to be sure to chink in paint wherever the joints seemed to be possibly a little loose, and he did so. Now, these outside cases are pushed down

into a banking of sawdust, which, being more or less wet, freezes around the outside bottom edge of the case; so you see that we have, practically, a dead-air space. In time these cases might, however, get a little leaky.

Now as to results. So far in our apiary we can detect no difference between the air-"packed" and chaff-packed. Yet I will admit that, before spring, we may see a woeful difference. I might say further, that, on account of dysentery, three colonies died in chaff hives, and one died in dead-air-space hives. Still, one straw does not show which way the wind blows. I consider it only negative testimony; that is, so far there is nothing particular *against* the dead-air space. I have never tried the experiment, but I believe the packed space will cool slower than the air-space. But, mark this: We want all the sunshine we can have. One writer—I do not know who it was—intimated that air-spaces were better because they would warm up quicker, and so give the bees a chance to turn over in their dose. You see, this fact will partially compensate for the extra protection of packed spaces.

About those rings of packing. No, I never tried them—that is, not exactly that thing. You know I spoke of this as being one of the provisional things. If the thing worked successfully here at the Home of the Honey-bees, it is no sign that it would do so in other localities. I merely outlined a few things that I wanted to test, and I wanted others to try, and this was one of them.

Now, friend Green, I thank you for your criticisms, and I am quite willing to have my air-space idea snowed under. My air-space, did I say? No, I do not quite mean that. It is a very old thing that I have been reviving of late, just as I did thick top-bars and fixed distances.]

E. R. R.

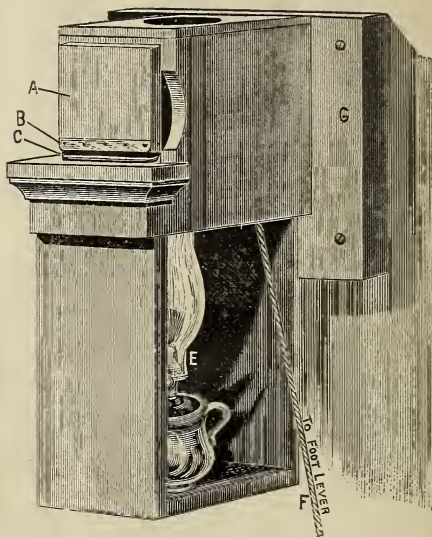
### THE HAYES FOUNDATION-FASTENER.

#### A GOOD MACHINE.

*Friend Root.*—As per request, I herewith inclose a photograph of my foundation-fastener. I can imagine some one exclaiming, "This is an improved Miller machine, as the principle is a metal plate." But the fact is, I claim entire originality, not knowing that any other persons were working or had worked on the same line. How true the saying, "There is nothing new under the sun." Really, I imagined I was going to present to the fraternity something that would certainly place me in an enviable position among the great in bee culture. I had already imagined myself in one of those beautiful half-tones in the leading apicultural journal of the world, including an autobiographical sketch of the inventor. But, alas for my fond hopes! Miller gets there, and I am left.

But notwithstanding, I claim the only practical machine extant. The model was constructed over a year ago. I have since manufactured several for supply-dealers and practical apiarists, and they are pronounced by all an unqualified success. The rapidity and perfection of its work are astonishing. I can readily put in 10 full sheets in one minute. This is about as fast as one can handle the pieces, being perfectly centered in the section, and I defy one to be loosened from the section without tearing it off. For putting in foundation *a la* C. C. Miller,  $3\frac{1}{4}$  at top and  $\frac{3}{4}$  at bottom, it works to perfection. It requires no warming preparation of the foundation. It simply should be warm enough to bend without breaking. Its work during the winter months, when other methods are so annoying, is simply perfection.

The most important feature of the machine, as compared with any other in the same line, is the guide-block, which centers the foundation without any effort from the operator. The steel plate *c* is controlled by the treadle, not seen in the picture; consequently it is adjusted on the floor at the right of the machine. The plate projects below the head-block *a*, sufficiently far to extend beyond the center of the section. There is beneath the plate space, so that, when a section is placed on the guide-block, it passes beneath the steel plate. The contact of the hot plate with the wood is controlled by the treadle, as you can hold it back until you desire to use it. But I



HAYES' FOUNDATION-FASTENER.

find the instant occupied in picking up the foundation gives the section the proper warmth to cause perfect adhesion. The foundation is picked up between the thumb and forefinger of each hand, and the lower edge is pressed against the guide-block, coming in contact with the hot plate, which is instantly withdrawn by pressure on the treadle; at the same time the foundation is dropped on the section, firmly adhering to the same. I consider this the only correct principle by which to fasten foundation.

MELL R. HAYES.

Washington, Kan., Nov. 20.

[Our experience with machines for putting foundation into sections by the aid of a sliding heated plate or tongue has not heretofore been satisfactory. But Mr. Hayes sent one of his machines, with a request that we give it a trial. We did so. It does the work neatly, rapidly, and accurately. It has this advantage over machines that *press* the foundation into the wood, *a la* Clark, in that there is no foundation wasted—an edge turned over and pressed into the wood. Your humble servant, E. R., tried it a good deal; and although it worked rather hard (through no fault of the principle, however, but because the working parts were a little tight) I felt satisfied there was something in the principle. I said, when I first looked at it, that it was copied after Arthur C. Miller's machine; but Mr. Hayes' letter shows that he also was original. It has the advantage over the Miller machine in that the block *A* guides the foundation to the center of the section.

Briefly, the mode of operation is this: A sec-



tion is slid under the tongue C, and all around the block A, the latter being just half the width of the section. A strip of foundation is picked up, and held against the surface A. The foundation is allowed to slide down and strike the heated tongue C, which, being withdrawn by the treadle, in connection with the cord F, leaves the foundation with a melted edge when it strikes the section. In an instant it cools and adheres.

The principle is all right; but the machine as made, it seems to me, is a little expensive, and possibly may be simplified a little more than this.] E. R. R.

### CONTRACTION AND COMB HONEY.

THE RIGHT AND WRONG KIND AGAIN, AS DISCUSSED BY DOOLITTLE.

I wish every reader of GLEANINGS would turn again to page 167 of the present volume and read the first part of C. W. Dayton's article on contraction. It is a rare thing that so much truth is brought out in so little space. I know nothing about his "queen-restrictor," and do not refer to that part. I have been very much surprised to see the grounds taken of late in GLEANINGS by its managers, to the effect that contraction methods tend to give only a medium force of bees in the honey-harvest, while all that I have ever written on the subject, and the most I have seen, has been to prove that the contraction plan, if rightly worked, will give a "rousing colony" during the honey harvest, as Mr. Dayton says, and as few bees at all other times as is consistent with having this rousing colony just when we want it. For the benefit of the younger readers of GLEANINGS, and to brush up your memory a little, Mr. Editor, let me say a few words as to how I manage bees on the contraction plan, to secure a large yield of comb honey. As the older readers of GLEANINGS will remember, I formerly worked my bees on the side and top-box plan combined, therefore all of my hives are two feet long inside, while the brood-chamber proper is only 13½ inches inside, 5¼ inches on either side of this being set apart for the side boxes, which, added to the 13½ inches, makes the two feet. Since I adopted the lateral plan of working for comb honey, as described in a late number of GLEANINGS, each of these side-box apartments is filled with chaff, or has a chaff cushion in there, so as to shut the bees out and protect them for winter. When spring arrives, the bees in these hives thus fixed are stimulated to rear the greatest amount of brood possible, by one or all of the known plans to accomplish this object, till the nine frames which fill the brood-chamber proper are filled with brood. As the weather is always changeable in the spring and early summer, the chaff packing is a great help to the bees, by way of enabling them to maintain an even temperature, and thus the hives are filled with brood a little earlier in the season than they otherwise would be, as all know who are now recommending chaff-packed boxes for single-walled hives as soon as set from the cellar. To digress a little:

I must say that I think those who are telling that an air-space is as good as a space filled with chaff or straw are making a great mistake. Let me prove it to you. On several occasions, from ants working in my packing, and for other reasons, the chaff or fine straw was taken out of one side, or perhaps one side and one end, during the summer and left out till cold weather came in the late fall or early winter. At this time, when I came to pack these vacant spaces I invariably found the bees

clustered up against the side or sides which were packed, and away from those where the packing was removed. If the packing was removed from one side I would find the bees clustered in a half-sphere against the opposite side; if removed from a side and an end, the bees would be clustered up against the inside opposite corner, lying right up against the wood along the two packed sides as far out as the cluster came. If all four sides were packed, then I found the bees clustered in the center of the hive in all directions. If this does not show the value of chaff packing, then I was wrong in allowing it to convince me that it were better to have my bees, all of them, in fully chaff-packed hives, as they are now. But, to return:

When these nine frames are filled with brood it is generally too early for swarms to issue to the best advantage for the production of honey; and desiring all the bees possible at this season of the year (these bees are in reality our crop of honey), I remove one of the chaff cushions from one of the five-inch spaces, and place three frames of brood, taken from the brood-chamber beyond the slotted ¼-inch division-board (which was placed there when I used side boxes, the bees passing through this slotted board to the boxes) when empty combs are placed in the brood-nest in place of the removed frames of brood. In a week the other end of the hive is served in the same way, which gives me, as will be seen, 15 frames in a hive, thus securing a large force of bees right at the commencement of the honey harvest, with little disposition to swarm thus far. As the brood in the frames set over in the five-inch spaces should be as nearly all sealed when set there as possible, it will be seen that, in 12 days, the brood from these combs should be all matured; and as the queen rarely goes into these spaces to deposit eggs, I have these combs empty of brood, or nearly so, by the time the wide frames of sections used on the lateral plan need to come out over these side apartments. They can now be taken out and reserved for new swarms, or used for tiering up for extracted honey. If any of the combs I wish to take out still have brood in them, they are just as good for the extracting super over a queen-excluder, or they can be used in forming nuclei or building up those already formed. As the frames are taken out, the chaff cushions are returned, they having been stored in the hive all the while, and the wide frames of sections allowed to go right on out over them, as I gave in my former article. When this hive swarms, the brood, with enough adhering bees to care for it, is set in a new hive on another stand. Six frames of comb foundation, or empty frames, as I think best according to the time of year, together with dummies to take the place of three frames, are set in the brood-chamber, and the swarm allowed to return, or hived back in the same hive (when the queen's wing is not clipped), when the work in the sections goes right along without interruption on account of the swarming. I need not enlarge on this matter. All will see at a glance that colonies treated as here given will far surpass in numbers, *at just the time we want numbers*, those kept in an eight-frame hive, and restrict the "mouths to feed" after the harvest is past, and yet give us sufficient bees for winter. What we want is a rousing colony *at just the right time*, and I know of no plan that will give such, equal to the contraction plan as outlined above.

G. M. DOOLITTLE.

Borodino, N. Y., Mar. 16.

[You and friend Dayton are bound, I see, to put me in a hole. Now, may be I had better keep still, and, as Dr. Mason says, pull the hole in after me. No, I won't keep still. Friend

Dayton uses a twelve-frame L. hive, while you use a nine to fifteen frame Gallup hive with or without a five-inch packed space on each side. My remarks were confined principally to the eight-frame L. hive. You see the circumstances were a little different. If all had hives, and managed contraction as do you and friend Dayton, there would be no disputing your grounds. But for some reason or other, the *tendency* of the times is rather against contraction. Here at the Home of the Honey-bees it forced pollen into the sections, and caused the bees to build out and fill the sections only over the contracted brood-nest. The sections projecting over the brood-nest were hardly touched. If I did very much contraction I think I should prefer to do it *a la* Heddon, on the sectional brood-chamber plan.

Dr. Miller used to be an advocate of contraction; but now he has rather gone back on it. Perhaps he will tell us why. Hutchinson, in the *Review*, says, "With an eight-frame hive I have seldom found it advisable to contract the brood-nest of an established colony."

Yes, Dayton did make some good points in favor of contraction, and you score some more good ones; after all, the more I read your article, the more I am inclined to believe that I do not disagree with you very much as *you manage*. If my printed statements do not agree, it is because I have not made myself clear.]

E. R.

[Friend D., I am greatly obliged to you for the heavy testimony you have given us in regard to chaff packing over an empty air-space. Perhaps your air-spaces were not air-tight; but when I devised the chaff hive I made a number of experiments very much like those you mention, to show the value of chaff. As you state it, it looks quite reasonable that your method gives a larger force of bees; but I confess I should have been better satisfied had you mentioned that you tried several hives without this plan of contraction you speak of.] A. I. R.

### STRONG COLONIES FOR GOOD RESULTS.

#### PUTTING TWO COLONIES TOGETHER IN SPRING.

However bee-keepers may differ on other subjects, I think all are agreed on this. Last season was a poor one; and although my colonies were fairly strong, I thought I would make sure of having at least part of them give good results, so I doubled up a number. It was a very simple matter to double them, for my hives stand in pairs, each pair standing close side by side, and it was easy to take one away and move the other a little, so as to stand in the middle of the place where the pair stood. The returning bees from each hive seemed very little troubled by the change. The hives had eight frames, and none of the frames were taken away, but a second story given, one queen being taken away. The question may be asked as to what I should gain so long as I did not increase the number of workers. Well, suppose each hive would give a surplus of 10 lbs., and the two united would give 20 lbs., there would be only one colony instead of two to handle. Besides, there ought to be fewer unfinished sections.

Now for the results. I can not say for certain, but, judging from what other colonies did, I think I didn't get as much honey from these doubled-up colonies as I should have done if they had been left separate. "Why?" I don't know. That's one trouble with my bees—they have so little consideration for either my theories or my feelings. I had counted on making quite a splurge on reporting the considerable

gain by my scheme, and it is no little humiliation to own up a failure. But the bees don't seem to care. Nearly always, when I plan something smart, the bees spoil it all. But I don't always tell about it. I don't like to. I've too much consideration for the feelings of other people.

Altogether, I had some 300 two-story affairs, at least part of the season, although most of them had only three or four frames in the lower story. A division-board was put beside these frames, and the empty space filled up with hay. To prevent comb-building between the two stories, a thin board was put in some cases, but generally a piece of cloth of some kind, perhaps an old bee-quilt. This allows no communication between the two stories, except a strip of one or two inches, the width of the hive, at the front or back end.

If the queen was left in the upper story, I'm not sure that she ever went down to the lower story of her own accord; but if she was left in the lower story, she was pretty sure to go up.

#### REARING COLONIES UNDER THE REGULAR BROOD-NEST, ETC.

By means of this two-story business I made a discovery of some value. Put a cloth or a board between the upper and lower story, leaving free communication between the two at front or back, having the queen in the upper story, and you may rely quite surely on having the bees start queen-cells in the lower story. It is much the same as Doolittle's plan of having queen-cells above a queen-excluder. By the way, if I'm not mistaken, the first public mention of having queens raised in an upper story with a laying queen below was made by me in the columns of *GLEANINGS*, and I think Doolittle refers to it in his book.

At first I was much elated with the idea of letting a young queen be raised to supersede the old one. But in this I succeeded, I think, in only a single instance. The young queen, in all other cases, was duly hatched, but disappeared before laying. If I were allowed to guess, I should say she got along all right till, in her wanderings, she got upstairs, when the bees killed her. It might be worth while to see what would be the outcome if an excluder were used so that the young queen could not get above. In Doolittle's experience, when the old and the young queens got together it was the old one that was killed. No matter whether the young queen was raised in an upper or lower story, she was the one to be killed with me. What made the difference? Could the bad season have had any thing to do with it?

Let me tell you the use I made of the discovery. It proved, in the first place, that a young queen can be raised in a hive with a laying queen, without the use of a queen-excluder. Such queen seems to be raised by the bees on the same principle as superseding, and may be expected to be of the best quality. If I wanted to save the queen I took her away just before or just after hatching. If I wanted to start a nucleus, all I had to do was to take away the lower story, bees and all, and set it in a new place. Enough bees would adhere to it to take care of the brood; and that brood, hatching out, would make quite a colony by the time the young queen commenced to lay.

Of course, taking the brood away in this way deprived the colony of the young bees it would have had later. If I wanted these younger bees to be left with the old colony, or, rather, if I wanted to return to the old colony all the field-bees of the nucleus, after the young queen began to lay, my plan was a little different. Instead of taking the lower story to a new place, I set it on top of the supers on the old place. Of



course, there was no communication with the hive below; and after the young queen began laying I then set the nucleus in a new place, and all its flying force would unite with the old colony.

Here's a plan that might work for those who want increase but prefer to have no swarming. Just before there is danger of swarming, make the hive two-story, putting only one frame of brood in the upper story, and the rest in the lower story with a cloth between, leaving the queen in the upper story. In about twelve days, set the lower story in a new location. This latter will be so reduced in bees by the removal that I think it will not swarm, and the old colony will be left in nearly the same condition as if it had cast a swarm. But that's only my guess in the matter, and the bees would have to be consulted about it before the plan could be trusted.

C. C. MILLER.

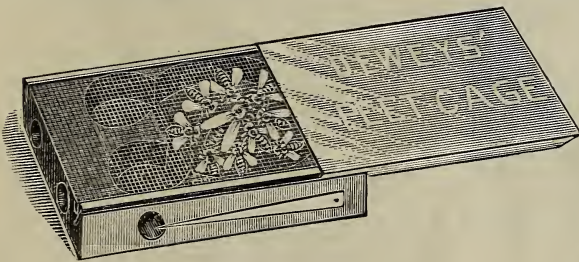
Marengo, Ill., Mar. 10.

[Friend M., we decided, about as you have, that uniting two colonies that are fairly started in spring, is, if any thing, a detriment in results. Of course, it is a good idea to unite two colonies so weak in numbers they would not pull through; but where they are fairly started, and have got things fixed to go right on when fruit-blossoms open, I do not believe it best to break up their arrangements, as we must do more or less to put two together. If one has more bees than he wants to care for, and no market for them, he might thus reduce his number of stocks, it is true.]

#### DEWEY'S PEET CAGE.

##### THE NEW SHIPPING AND INTRODUCING CAGE.

Mr. Root:—We hand you an electrotype for GLEANINGS, which you kindly offered to insert. If agreeable we would add a word to the readers unfamiliar with the innovation.



DEWEY'S IMPROVED PEET CAGE.

This is a standard Peet cage, save in having a wire-cloth slide beneath the tin slide, and three openings upon the edge into the candy. The original Peet cage is convenient in weight, shape, and size for the summer transport of queens. The objections upon different grounds made to it in GLEANINGS by Dr. Miller, Mr. Doolittle, and others, need not be repeated. It may be recalled how they demonstrated that time, combs, and queens, are too valuable to be devoted and sacrificed to the use of the Peet cage as originally devised.

The Peet idea of introduction, indeed, is obsolete; but the cage has advantages not inherent in the Benton, the Pratt, and other popular cages. There is the chief objection, that it has but one apartment. The new cage, as entitled above, has received this criticism, with the objection of extra cost; but it bears lightly these disparagements, trusting that time will show them both to be more or less immaterial.

The improved cage will drop between the combs, with very little spacing, into the midst of the bees, where its two gauze sides invite speedy acquaintanceship. What other cage has these two advantages—location in the cluster, and publicity of the queen? The time of liberation is dependent upon the number of passages uncorked to the outside bees. The Benton cage has but one opening, and is too thick to slide between the combs.

Will bees be shaken about more by transit in a shallow cage like the improved Peet, than in high-walled compartments of the other transmitters? There seems to be an answer upon theory. We will let experience give the verdict. Again, the bees are not in immediate contact with a chilling tin surface. Mr. P. H. Elwood suggests that wax applied to the inside of the slide in cold weather might tend to retain the warmth. This may be done, or a paper may be slipped between the tin and the gauze.

For those yet desirous of using an old and familiar method of introduction, the improved cage will be a Peet cage still by removing the gauze slide. On the other hand, when the tin slide is drawn away the queen may be introduced by almost any method now in vogue, and as soon, or as remotely as desired. All are free to use the cage. It has good points; do not sweepingly condemn it. The saving of queens in introduction will cover its extra cost, which is not large. The Falconer Manufacturing Co. are now making the cage. It will probably never come into universal use, but has a place to fill for a considerable class who desire at once a fair shipping and a reliable introducing cage.

F. H. & E. H. DEWEY.

Westfield, Mass., Feb. 26.

[The cage as you have changed it is certainly improved; but it just occurs to us now, that, if you had gone just one step further, you could have improved it still more, and still have retained many of the features valuable in the original and new Peet cage; besides all this, it would cost less. Why have the tin slide at all? This, you remember, is one of the naughty features of the old Peet cage. The wood will shrink or swell so the slide will be either too loose or too tight. We would make the cage this way: The wire-cloth slide you have adopted is a good thing. Go a little further and make two wire-cloth slides, and groove both sides of the cages alike, and shove the wire-cloth slides, one on each side, into the grooves. Cover both sides with a light strip of wood  $\frac{1}{8}$  inch thick, and the size of the cage. These are to be held in place by nailing. The purchaser, on receiving his queen, simply pries off one of the wooden sides and then introduces by the candy or Peet method. If by the Peet method, he fastens the cage against the comb, in the regular way, and withdraws the wire cloth in place of the tin slide. Why, friend Dewey, you have given a suggestion that enables those who still like the old Peet method of introducing, and still do not like some of the disagreeable features of the Peet cage, to have just what they have been looking for, without most of the objections. Still, for all this we think the Benton cage is superior. It is the one cage that has carried queens successfully by mail to Australia, back and forth to Europe, across continents, and to the islands of the sea. One great reason for this is the three small compartments instead of the one large one.]

E. R.

### WASH YE, MAKE YOU CLEAN.

THE NEW WATER CURE AT THE PRESENT TIME.

When I proposed sending our little pamphlets out by the thousand, as I did in our issue for March 1, I expected a flood of testimonials from a grateful people; but I confess I had no comprehension that we should get such astounding testimonials in regard to its power in curing disease and alleviating suffering as have been coming for the past few weeks. I have been saying to myself again and again, "This is a new thing, and it is fashionable. Everybody is talking about it, and we must make allowances for the effect of imagination." It is not very many years ago since people were buying electric medals, or buttons—yes, whole factories were engaged in making them. Even the hands in our establishment, in spite of all I could say, wore these senseless trinkets, and declared they felt stronger, had more vigor and energy, etc. I tried to remonstrate, and proved to them the device had no electricity about it at all—that electricity did not work in that way, etc. I finally gave it up in despair, and inwardly groaned in anguish to think that people of good sense should have faith in a silly trap that was just about on a par with nailing a horseshoe over your door for good luck. I do not know how long they stuck to their electric medals, but I think they are pretty much all gone now, and the electric belts and all such traps with them.

Now, the question that confronts us is, "What part of the wonderful cures that are told of in every mail, come from this same queer trait of humanity, and what comes from downright actual relief?" I am sure that a good deal comes from the latter; for it is as plain as an operation in surgery, or as plain as the remedying of a defect in a mechanical appliance; and along with the testimony comes a great string of facts in regard to relieving and saving the lives of *domestic animals* in the same way. For this purpose, any of the common fountain pumps to be found now in almost every household will answer an excellent purpose. One writer tells of finding a valuable ox just at the point of death, from a stoppage. He happened to know what could be done with water, so he borrowed a cheap pump of a neighbor, and the animal was relieved and on its feet in just a little while. I suppose that hundreds of valuable horses, cattle, and other stock are lost every little while just through ignorance of the simple means in the reach of every one to relieve them. You need not be afraid of using too much water.

As I expected, the question arises continually, "What shall be done with this large amount of water, to get it out of the way and avoid unpleasant smells and laborious carrying?" Very few bee-keepers' homes are provided with water-closet arrangements to dispose of this accumulation. The best arrangement I know of is one I have described before, which we have had in use for some years. The ground back of our outbuilding slopes downward for perhaps ten rods. Some years ago I dug a ditch, three or four feet deep and two or three feet wide, filling it within a foot of the top with stones, tinware, and any old rubbish I could pick up on the premises. Over the top I put flat stones, old tinware, sheet iron, and whatever else I could gather up; then it was covered with good rich soil. The covering was placed low enough so the plow would not disturb it. This is on the plan of father Cole's "new agriculture," as you may remember. The upper end of this covered ditch communicates with our out-building; but, please notice our whole

ground is thoroughly underdrained, and the underdrains are just below this reservoir, so it can not stand full of water. Right over this covered ditch we have planted rhubarb, or pie-plant; and it supplies our whole town with immense stalks of "pie timber" almost the year round. If anybody wishes to take exceptions to this way of raising garden-stuff, he is at liberty to do so; but I have never seen one who could tell a particle of difference between this product and that raised with an abundance of stable manure. In fact, there *is* no difference. Now, the above arrangement will dispose of just as much water as you feel inclined to use. The objection to Terry's plan of having heavy buckets of galvanized iron, is, that they soon become full, and heavy to carry away. One good friend suggests that Terry should modify his plans for an outbuilding, so as to accommodate the new water cure.

We have not space to mention a tenth part of the wonderful cures narrated; but I may speak of one or two. One friend was taken with a pain in the back while out in the woods chopping. He had great difficulty in getting home. The doctor was called, and he pronounced it rheumatism of the bowels. He did every thing he could for his patient, but it amounted to but very little. Other physicians and different medicines were used, but to no avail, and he and his friends began to think he would never be able to work any more. However, a thorough use of the new cure enabled him to get up and go to work in less than *three days*. His backache was the result of a stoppage that the water removed. It took nearly a month, however, to effect a permanent cure.

I must not fail to mention, that quite a number have testified to the effect that the new water cure has a wonderful effect in the modern disease called "grippe." Sudden acute attacks are driven away almost instantly by the use of hot water. One friend says that, by using daily, he entirely escaped a series of severe colds that affected the whole neighborhood around him.

Several have suggested having a short tube through the bottom of the pail, just large enough so the rubber tube will slip over it. Of course, there can be no objection to this plan, but it spoils the pail for other purposes, and I do not see that it is any more convenient. To facilitate using the water, I have a light tin pail, and the water is dipped from the hot-water reservoir that stands on our Stewart stove. This pail hangs on a hook right back of the stove. The rubber tube is on a little shelf (out of sight) right beside the aforesaid hook. This is simply dropped into the water, and a little bent wire near one end of the tube is slipped over the edge of the pail. As soon as the other end is dropped down the water begins to flow. The length of the rubber tube and the height of the pail determine the force of the jet of water.

#### DR. SALISBURY'S METHOD OF TREATING DISEASE, AND HIS USE OF HOT WATER.

*Mr. Root:*—In your article, "A New Method of Treating Disease Without Medicine," in GLEANINGS of March 1, there is a brief allusion to Dr. Salisbury's method, which is somewhat inaccurate. It is quite true, that the doctor has accomplished and is still accomplishing much for suffering humanity, but he doesn't *feed* his patients on hot water. In his system the hot water is used solely for flushing the stomach and intestines, cleansing the former from slimy, pasty growths, which interfere with good digestion, and the latter from feculent deposits. To feed his patients, the doctor prescribes beef—lean steak, free from fat and



gristle, reduced to mince meat in a chopper, and then pressed into cakes or meat balls, and then broiled. According to Dr. Salisbury's theory, man is two-thirds carnivorous and one-third herbivorous; and his food should follow the same proportions. In some countries—India for example—the people, in the course of generations, have become herbivorous, and are able to live on a purely vegetable diet; but, few people can digest a purely vegetable or farinaceous diet in the United States. The doctor holds that most diseases are caused by a long course of eating improper foods which ferment in the stomach or bowels, and do not properly digest. His remedy is, first, to wash away offending and offensive matters by taking a pint or more of hot water at about a temperature of 110°, an hour before each meal, and the same interval before bedtime. Then he prescribes an exclusive meat diet, or as nearly exclusive as the patient can take it, forbidding sugary, starchy foods, and any thing prone to easy fermentation. Medicine is given, if necessary to help digestion. With good digestion the system begins to make good blood; and with a supply of good blood, all the organs of the body perform their functions well, and normal health is restored. This, of course, is not done in a day, for nature works slowly, and the result of a long course of wrong living can not be corrected by a short course of right living. In the case of serious diseases, like, for instance, consumption, it takes probably a year or two of treatment to get thoroughly well; but the improvement usually begins at once; and the end, if slow, is pretty certain.

The doctor's plan, you see, differs from the one you describe, in that it is more extensive—flushing the whole of the internal man, and not simply the colon, though the latter is good so far as it goes—and more natural.

It may interest some of your readers to know that Dr. Salisbury is an Ohio man, hailing, I believe, from Cleveland, though now living in New York, at 170 W. 59th St.

New York, March 7.

E. CONNOLLY.

[My good friend, we are exceedingly glad to hear something which comes so near being direct from our old friend Dr. Salisbury. Perhaps I may remark, that I was at one time an enthusiastic patient of the doctor's—so much so, that, for eighteen weeks, I scarcely ate so much as a crumb of bread; therefore when anybody tells you that a man can not live on animal food alone you may know he is mistaken. At an early period of my life, for almost four years I ate only vegetable food. It were no more than fair, however, to say that I used plenty of milk and butter. I was at that time an ardent disciple of Fowler & Wells. In regard to animal or vegetable diet, my opinion is, that the great Father has given us a system so adapted to a variety of foods that nature can, without much effort, get along with either the one or the other; and I believe there are times, or special conditions of the system when either the one or the other almost exclusively may be a benefit; and I think one marked benefit I received in both cases was that I got so tired of my food that I was very certain not to overload the stomach; and I believe that almost every one who is ailing may receive benefit by eating sparingly. Find out, by careful experiment, just how much food is needed to enable you to get along comfortably, and then stop right square off when this limit is reached, always remembering that *too little* is far safer than *too much*. Hot water, taken in large quantities a full hour before meals, is many times an excellent thing. For myself, however, I greatly prefer it in the shape of hot lemonade. My

good friend Dr. Salisbury, however, with most patients, would bid them omit the sugar part of the above beverage.

I beg pardon for my pleasantry in regard to feeding patients hot water; for if anybody knows that Dr. Salisbury chooses for his patients the most concentrated and hearty food there is to be found, I certainly ought to. Hot water of itself, without any other diet, would probably prove to be a rather "thin" food.]

#### INTERNAL BATHING—IS A CAUTION NEEDED?

Regarding your suggestions in regard to the use of water in cleansing the body internally, I should like to inquire whether, the use of water once adopted, it is not necessary to persist in it always thereafter. I have been told of cases in which defecation has not occurred for years without the use of water. H. M. WHEELLOCK.

Fergus Falls, Minn., March 14.

[Friend W., two or three physicians have declared that there is danger in the way you indicate. I am inclined to think, however, that there can not be very much danger, for we have testimonies now from hundreds who have used it for from several months to several years; and I myself have used it daily for a week or two, and then stopped, and I did not experience any difficulty in the line you indicate.]

#### "THROW PHYSIC TO THE DOGS."

[I have several times felt that I should like to be able to cleanse the whole small intestines, in the same way we cleanse the colon. A good friend who has been for many years an invalid gives us a suggestion in this line in the communication below:]

In GLEANINGS for March 1st I notice a clear statement of the drugless remedy, and the benefits to be derived by its use. I have been a great sufferer from sick-headache, having it frequently, sometimes every week, and lasting three and four days, without intermission—one of the three or four days, often unfit for any business, or even to see a friend. My ailment was not like yours. Bro. Root—diarrhea, but the opposite—constipation—and of the most obstinate nature, so that pills and drugs of all kinds, thought to be helpful, were resorted to. I was also very careful as to the regimen of diet. These generally gave some temporary relief; but after a while, each in turn would, in a great measure, lose its power, until I had almost given up all hope of having any comfortable degree of health in this life.

When I heard of this "new method of treating disease without medicine" I gave it a thorough practical test. With me it did its work *well* just as you described, but did only *half* of the work. While the colon was cleansed, and apparently entirely relieved, the small intestines remained in their dormant and consequently diseased condition. I told our faithful family physician my difficulty, and it is for the sake of giving to any who have suffered as I have, the benefit of his reply that I now write this article.

Take a hearty drink of water, cold or warm (warm is best) on retiring at night. And as soon as you rise in the morning, use flaxseed (that which is not ground is best); pick all the straws or other refuse matter out of it, of course. Eat enough of it so that the bowels will have a free natural movement. It may take three tablespoonfuls—with others, much more, even to a pint a day. Be sure to take enough; it can not do any hurt. It will cleanse the stomach; and, as it passes the small intestines, will clear them; then, entering the colon,

with the water treatment their united action will prove most effectual. The flaxseed leaves the whole system lubricated, so that the work of digestion goes on more perfectly—at least, this has been the result in my case. My bowels now move full and freely; and although I am 55 years of age, my general health is much improved. The headaches have almost entirely disappeared. As my ailment was of long standing, it is probable I shall have to keep up the use of flaxseed or the combined treatment for some time, or, perhaps, more or less through life. But if I shall receive as much benefit from them in the future as I have in the past, I can hardly say enough in their praise. L.

I have been using it for the past six weeks for what the doctor calls neuralgia of the bladder and bowels, and ulceration of the bowels. He gave me medicine to take internally, but I did not take it, as I wanted to test the hot water. I find I am perfectly free from pain, and am able to do my usual work. I used about three quarts every morning and night for the past month; since that the same quantity once a day. There are large numbers of people who have paid \$4.00 for the cure, and they speak very highly of it; but they are bound not to divulge the secret, if it is a secret; but the public will owe you a debt that money can not pay.

Alvinston, Can., Mar. 14. JAMES ORCHARD.

We notice in the *Canadian Bee Journal* of March 15, that the *Montreal Witness* has published the water-cure treatment exactly as given by Dr. Hall.

## LADIES' DEPARTMENT.

### BEE-KEEPING FOR WOMEN.

#### LIGHTER APPLIANCES FOR OUR LADY FRIENDS.

After reading the letter signed Emma Wilson, on page 89, I thought, why can we not have a corner to discuss gloves, aprons, etc.? There are lots of questions we women bee-keepers could ask of one another, while the men are discussing thick top-bars, closed ends, and dovetailed hives, with which they fill the paper, and I am not the least bit interested in, because the thing on my mind is section-cases for next season: what shall I get? One that will hold 24 sections, will with propolis and all complete, weigh 30 lbs.; this is too heavy for a woman to lift, especially when there are many and she is in a hurry. I have 32 hives, and have to do every thing around the bees myself; as they are so cross, none of the family will touch them. But if they are cross they are good workers. Last season they averaged 30 lbs. to the hive, while many others got nothing. Those "Blessed Bees" have been a success with me, for in the very poorest years I always get a little.

I have used the wide frames to hold sections, six of them holding 24 sections on the 8-frame Langstroth hive, but they are too heavy; so I took three of them and nailed on grooved strips and put in glass, or sometimes pieces of shingle or wood separators, and tied them together with cord. They are some trouble to fix, but when they are done they are very handy, as they are easy to lift and put on the hives, and they can be piled up two or three stories high, or turned around. I have thought if A. I. Root could see them he would say: "Oh dear! how very shiftless and untidy!" But I did it because it was easy to lift them. MRS. W. GRUBB.

Deansville, Deane Co., Wis., Mar. 2.

[Years ago we had what we called a Ladies' Department, but for some reason or other it was dropped. There is no reason why it could not be resumed if the sisters will be sure to write for it. Miss Wilson has already made a good start; and if the ladies will discuss some things all by themselves, we men will not stand in the way.]

In regard to a suitable surplus arrangement, why wouldn't a dovetailed section-holder surplus case answer the purpose? Twenty-four pounds is too heavy to lift all at one time, you say. But, bless you, with the super as modified with a follower, you need not lift more than four sections at a time. Say, now, what is the use of lifting 24 lbs. so much, any way? If you don't want to bother with four sections at a time, just have a light, handy wheelbarrow close to the hive, and then sort o' tilt the case up on the barrow. You know you can handle a good many heavy things by simply getting the advantage of them in the right way, and still not be obliged to do any heavy lifting or straining. You remember years ago, Mrs. Jennie Culp used to produce some big crops of honey, and she used one of A. I. Root's handy wheelbarrows as her "best man" in the apiary. She made him (i. e., the wheelbarrow) do all the carrying, and managed the yard with profit and pleasure. "There, there, now," some of you will say, "just like all supply-dealers. They like to get in an advertisement of some of their implements in a foot-note." For conscience' sake! Can't we mention a good thing, even if we do sell it? E. R. R.

### GLOVES FOR BEE-KEEPERS.

#### RUBBER GLOVES, COTTON GLOVES, ETC.

Miss Emma Wilson wishes the experience of some of her bee-keeping sisters with regard to gloves in the bee-yard. In the beginning of our bee-keeping we tried rubber gloves, and promptly condemned them for reasons similar to those given by Mrs. Harrison.

Were it not that Miss Wilson expects to handle Italians instead of hybrids next summer, I should not think it worth while to bring to her notice the gloves we use, for they are by no means sting-proof. But with Italians the hands are in little danger, except such as proceeds from one's own carelessness. We use white cotton gloves, two or three buttoned, so that the wrists are protected, loose fitting, and with each finger cut off—and the edges stayed—just above the first finger-joint. To tell the truth, I find the unembarrassed use of my fingers so indispensable in handling frames and sections, that I dislike even this slight incumbrance, to which, nevertheless, I submit for the sake of some protection from propolis and a shade or two less of tan. The gloves are very cheap—fifteen or twenty cents per pair; and as they need frequent washing, half a dozen pair should be provided for a season. I wish Miss Wilson would try these with her gentle Italians next summer. I can assure her that they will prove more comfortable than buckskin, and, moreover, she will be able to place herself so completely *en rapport* with her bees that she need fear no stings except those that she may deserve. A pinched bee has a right to sting.

#### DO DEES DISTINGUISH COLORS IN A BEE-KEEPER'S CLOTHING?

I was interested in Miss Wilson's remark, that bees seldom if ever sting white. That bees have an eye for color, I learned in an interesting way a few summers since. On one side of the broad-brimmed hat I wore in the bee-yard, was a knot



of cardinal ribbon; and I soon discovered that a certain colony of hybrids took it in high dudgeon if I approached too near. That ribbon was to them a red rag flaunted in their faces, and they rose up at once to resent the insult. Sometimes, when necessary to open the hive, I would make up my mind to quietly ignore them, for they never touched my hands nor tried to crawl beneath my veil. But to feel them hurling themselves like shot against the side of my hat, and to hear them siz-z-z-zing as they burrowed into that knot of ribbon, generally demoralized me to such an extent that I would close the hive and beat an ignominious retreat. I liked the bit of bright color on my hat, and was unwilling to part with it; so, in deference to their feelings, I pinned over it a piece of tissue paper. But a strong breeze would sometimes tear off the paper, or perchance release and expose only a corner of the ribbon, and at once the bees made me aware of the fact. So they conquered finally, and the objectionable color was removed.

NELLY LINSWIK.

March 20.

[My good friend Nellie, you have given us some very valuable facts at a time when we wanted them, and I am glad of some suggestion in the way of something cheaper and better than rubber gloves. From what experience I have had, I believe that cheap cotton gloves, with the fingers cut off, as you suggest, will be the best and cheapest thing you can get. I have always felt sure that a good bee-keeper needs all the fingers God has given him, and he wants those so free and unobstructed that he may not only have all his fingers but all his wits at his fingers' ends. Your experience with that red ribbon seems to settle the matter: and now comes a question for our scientific friends: Why do bees object to red? It has been said, that our domestic animals recognize it as the color of blood; and the sight of blood infuriates not only animal kind, but even man in his savage state. We are told that the American Indians, at the sight of blood, often become raving maniacs, especially when their worst passions are stirred up by some quarrel among the tribes. But our little friends the bees have no red blood in their bodies. Why, then, should those colors arouse their ire and prompt them to sting? Will Prof. Cook come to our help?]

#### WOMAN'S DRESS IN THE APIARY.

BEE-VEILS, GLOVES, ETC.

This is to me an interesting subject, because I am always looking for improvements. But I have not been led to make much change in the dress I stumbled on when I began working among the bees. In making preparations I read all that my small stock (at that time) of bee-literature contained on the subject. My experience may help others.

From the A B C I got Mrs. Harrison's idea of a hat; but I have discarded that, except the cape, because I found that a straw hat, with not too wide a brim, is a better protection from the sun. I want the hat as light as possible, and not to press on or cover my forehead, and to have an air-space at the top. I like the cape to tie under the arms, and I generally fasten the hat on my head with a long hat-pin, or an elastic, because sometimes it will get disarranged just when I can not put my hands up to fix it. That was one objection to Mrs. Harrison's hat—it would slip about on the head.

For the dress, I wanted something to fasten at the neck over the cape. I had in the closet a linen duster, close-fitting, plainly gored, double-

breasted, with two coat-like pockets. I put it on over the cape of my hat, and belted it at the waist. It covered my dress entirely; it was neat and tight, and the pockets were ever so handy. As it is linen the bees do not object to it, and it is light and cool. I have found it so exactly the thing, I have never changed; but when it was worn out I bought another, and last spring I went to every large drygoods house in Chicago for another, but they are no longer in stock. They use mohair now, and I was obliged to get the linen and make one. I have paid \$2.00 for the ready-made garments, but this cost a little less.

For my hands, I have gloves, with gauntlets to fasten over the sleeves with elastics, sometimes; if very warm, only linen mittens made of the same material as my coat; and it is rare that I get a sting through them; but I want something on to keep my hands clean, and to prevent tanning. Some of my gloves have the ends of the fingers off. I use these when I want to work fast. I do not mind stings if they are not on my face.

When taking off honey I usually put on an apron to keep my dress clean; and, in fact, lately, more often I tie an apron around my waist instead of a belt. It answers the same purpose—to keep the bees from crawling up to my head; and, as I am so often on my knees when at work, it gets the grass-stains and dirt, and can be easily washed. Miss Wilson's apron is just the thing, because it is so snug. You do not want any thing that will blow about, and catch on hives and bushes.

As far as dress is concerned, I do not think a woman need to get any more stings than a man. In my armor I am almost sting-proof. It is an exception to have one on my body. I know I do not get the most stings in this apiary, unless I am the only one at work.

S. M. Stow.

South Evanston, Ill., March 20.

#### SOME VALUABLE SUGGESTIONS IN REGARD TO WORKING AMONG BEES DURING VERY HOT WEATHER.

ALSO SOMETHING ABOUT REFRESHMENTS FOR THE BEE-KEEPER.

I see in GLEANINGS, March 15, that ladies are to have a department. I like a mixed session, as a general thing; but there are some subjects that we can profitably talk over among ourselves, that gentlemen have little or no special interest in. As bee-keepers, we need different clothing and far lighter implements. I'm not young, and far from strong; yet I can accomplish considerable by taking care of myself. I have to be careful and not get overheated; and I can not carry much weight in clothing, either. Our hives are so situated, that, during some time of day, they can be opened in the shade; but hiving swarms has to be done in the sun, many times with the thermometer one hundred in the shade. What clothing is best for me to wear may not be best or proper for another. I keep my clothing, that I wear to work in the apiary, in the honey-house, and go out there and remove my outside clothing, and hang it up, to put on again when I am through. During June, July, and August, in this locality I could not endure a ticking apron. My under-clothing is the American costume, and is high in the neck, reaching from my ankles to my wrists; and if I have to hive bees when it is one hundred in the shade, I put on over this one skirt, a wet head cap, and then tie on my bee-hat, and put on a linen sacque, which keeps all bees from getting under the cape of the hat, and gloves with gauntlets. As soon as I am

through with active work in the sun I wash, and change to warmer clothing, to keep from chilling.

I always have an umbrella at hand, attached to a staff, such as artists use, so I can stick it in the ground, to shade me when at work. When I hear, "Bees are swarming!" the first thing I get is the umbrella, to raise and shelter me while I am watching to see where they are going to cluster. With the staff resting upon the ground, it makes it easier to hold.

Heat may not affect all heads as it does mine; yet comfort and health should be considered before looks. If I worked at out-apiaries I should have to wear much warmer clothing, going and returning, than I could endure while at work.

It refreshes me very much, when I am hot, to eat a pint bowl of ice with a tablespoon, or a lemon cut up with the ice, and sugar. If I should drink a glass of ice-cold water it would make me sick; but the ice never does, melting slowly.

Mrs. L. HARRISON.

Peoria, Ill., Mar. 21.

[Now, dear friend, we are quite willing to submit, or, perhaps, to stay in some other department, when you are talking about clothing for women in the apiary; but when you wind up by talking about a pint bowl of ice, with lemons and sugar, to eat with a *spoon*, we want to be around with the sisters. Why, my good friend, you hit right squarely on my favorite beverage and luxury in the summer time. We have a great big ice-house of our own, chock full of ice from the carp-pond. Then we got a little machine, for about four or five dollars, that turns with a crank. Put in a piece of ice and set your pint bowl under the hopper; turn the crank and the ice is broken up in pieces about the size of peas. With a lemon-squeezer, put in lemon-juice and sugar to taste, then sit down in some quiet place to eat it with a spoon, just as you would mush and milk. I got the idea years ago from some of the health journals, that one could eat pounded ice where he could not stand a glass of ice water, and it has been worth ever so much to me. But to enjoy it, and have it do me real good, I want to take it slowly. And now here is a suggestion for poor unfortunates who at some time in their lives have been intemperate. I used to enjoy greatly (at least I thought I did) a glass of beer from a pitcher with a lump of ice in it; and a great many times old memories will come back and tantalize me; but after I have had my bowl of "lemon ice," as I call it, I would not give a fig for all the beer in the world. Now, if there are any among our readers who have found it hard work to give up the beer, let them try our plan. Mrs. H. and I do not propose to monopolize the idea, by any means. A good many times lemons and sugar are cheaper than high-priced fruit; and my opinion is, that they answer the purpose just about as well.]

### RUBBER GLOVES.

NOT SUITED FOR BEE-WORK; MISS WILSON DISCUSSES CONVENIENCES FOR LADIES.

I have had so many good letters, and so much valuable information, in regard to gloves since my article on that subject, that I feel as if I should like to give at least a part of it to the readers of GLEANINGS. One and all agree that they want nothing to do with rubber gloves, Mr. Thomas, of Nebraska, gives five such good reasons for not using them that I will copy them.

1. They are not handy about getting on.

2. No matter how dry one's hands may be ordinarily, the perspiration will condense inside them, and the hands will be all the time wet.

3. They will almost always turn inside out in taking them off. In case they fail to turn, you must turn them to allow them to dry, and then they must be turned back again to wear.

4. They are tolerably expensive, and do not last long unless perfectly cared for.

5. (and biggest). The combined smell of rubber and perspiration, after the gloves have been used awhile, will leave one of the most horrible combinations in the shape of an odor clinging to one's hands that he ever experienced.

For two years Mr. Thomas has used a glove called sealskin. They are smooth and shiny on the outside, like kid, but somewhat heavier, white and pliable. He has never been stung through them. After some little difficulty I have succeeded in getting a pair, and mean to try them this summer.

Mr. Coldwell, of Nebraska, has used dogskin, which he likes very much. Mr. R. McKnight, after experimenting a good deal, has decided to use kid. He also says that a cotton duck grain-bag, costing about 25 cents, makes a very good apron; and although a man, like a very sensible one he wears such an apron himself.

Mrs. Shreve, of Ohio, has used calfskin gloves, and likes them.

Although there is such a strong feeling against using gloves, it seems a good many can not get along without them.

As often said, it is the little things that make our work hard or easy. Having every thing convenient for our work is half the battle. Tools convenient, a good supply of smoker fuel in a handy place, etc., all make a big difference in our day's work. Every step saved is a help. I don't know of any one thing that is as great a comfort in the apiary as a good seat, light and strong—one that is easy to catch up when you are in a hurry. Use it whenever it's possible. That is my trouble—so many times I think I am in too big a hurry to stop to sit down, when I have no doubt I could save time by doing so. But I might as well confess I would not do it if Dr. Miller did not insist; and I am ashamed to say I sometimes feel fretted because he does insist, when I ought to know at the time that it is best. Although you may gain a few minutes at the time, not to stop to sit down, you become so tired that you will not accomplish as much in the course of the day.

Whenever we have any special work that will take some time to do, Dr. Miller will spend considerable time in planning how to make that work easier. For instance, if we are making shipping-cases he has a form to hold the pieces securely in place while we nail them; another form for making supers, etc. In glassing shipping-cases, unless you are very careful you will crack the glass. You want to drive the nail in just as deep as possible without breaking the glass; and it is a difficult matter to tell when that point is reached. Dr. Miller obviated the difficulty for me in a very simple manner. He took a piece of section, a little thicker than the glass, cut it the width of the glass, with a little notch where I wanted to drive the nail, something like this:



By pressing this against the glass I could drive my nail without fear, knowing that the hammer would strike the wood before the head of the nail could reach the glass. You don't know how much faster I could work by means of this simple arrangement. EMMA WILSON.

Marengo, Ill., Mar. 7.



[We are glad to get this testimony against rubber gloves; and it has been agreed so uniformly, that they are not suited for bee-work. There has been a protest in our catalogue all along, but still a good many customers buy them. Something cheap would be better; for when they get too badly worn or soiled they can be thrown away.]

I always use a seat while working among the bees; but I don't want any thing to lug around all day, so I sit on the hive-covers, and I don't want any thing better. I will shortly illustrate how I manage.] E. R. R.

### BEE-KEEPING AND HOUSEWORK.

SUNDRY ITEMS FROM MRS. AXTELL.

Women who make bee-keeping a business, as well as others, should learn how to make their housework light and easy. No work is more laborious than our washing. I have tried many ways of doing mine, and I find that a good washing-machine that covers up and keeps the suds hot is a great help; also borax dissolved in the water, a piece as large as a hickorynut, for a small washing, or a piece twice or three times as large for a large washing, with plenty of soap, will loosen the dirt and cause the clothes to be white and clean, and not injure the fabric. It causes flannels to be soft and clean. I buy borax by the pound, and use it in preference to any kind of washing-fluid or patent soaps.

#### SHORT VS. ABUNDANT STORES.

The talk about short winter stores being a saving seems very nice to the bee-keeper; but the bees are like a man with a pocketful of money—he is in better condition to take advantage of the times, and make more money, than one living from hand to mouth; and just so I think it is with the bees—they make us more money with their pockets filled; or, in other words, with plenty of honey at all times, when not able to gather it from the flowers. An old and experienced bee-keeper might be able to make more from his bees by keeping them with short stores at certain times of the year if he has plenty of time to be tinkering with them; but beginners would let them starve. They would be more likely to waste a pound to save a penny; and also those who have much other work to do had better not try to see how short of honey they can run their bees, or they will forget and run them overboard.

#### OUT-APIARIES.

Considerable has been written upon out-apiaries. The first object sought should be a good location, which generally is best near swampy or pasture lands; yet in this vicinity, where the most of the land is worked and planted to corn and oats, we often have rich fall crops of smartweed that comes up after the oats are harvested, and in thin places in the corn. The next object should be to plant the apiary in a permanent location where the man owns the property, and is not likely to move away; also, that the people are obliging, and likely to be patient with the bees. It is extremely unpleasant if the people are afraid of them, and all the time complaining of them.

#### SHADE, AND WHAT MRS. AXTELL RECOMMENDS.

I would not be so very much influenced by the matter of shade, as to where to plant my bees, if all things else were satisfactory; but I would secure it at once; and immediately, whether fall or spring, plant out quite thickly some fast-growing trees, such as soft or ash-leaved maples—some call them box-elders. I would not plant fruit-trees, even in a home apiary, as they are almost sure to be barked and killed,

and are of too slow growth. I should plant the trees twice as thick as I wished them to be when grown. One will be surprised to see how much shade they will make, even the first season, if they are planted carefully, and, if dry weather sets in, are mulched. The large Russian sunflower will make a nice shade for the first season, if planted so as to throw its shade directly upon the apiary in the heat of the day. The only objection to it would be the large quantities of propolis it secretes. It is visited by the bees more for its propolis than honey, I think, and more by the common small wild bee than the honey-bee. One of our neighbors had his apiary thus shaded, and, when in bloom, it was quite picturesque. If the apiarist has any doubts of being able to secure a permanent place for the apiary, he should not build a house, but use empty hives to hold what articles need to be covered; or I would build a small house that could be easily moved by placing it upon a sled in winter time.

#### HOW TO MAKE THE WORK EASY FOR WOMEN.

But it is a great convenience, if a permanent location can be secured, to have two houses—one a small plastered one, with a window, a bee-escape, and a tight door, to keep all the honey and combs in, and another that a small stove can be set up in, where the apiarist can warm his coffee and dinner, and rest in cool days. It need be but a small room with only a pane of glass in the door, with no furniture but the stove and what can be made of the bee-fixtures; and yet it adds greatly to one's comfort. Such a room we have. When we go to our out-apiary to work we do not try to rush through the work so hard that our help will never want to go again, but we take along our reading, and rest a while at dinner time, and either read or chat, and generally try to have a good dinner, so that our help often say they would rather go to the out-apiary to work than to work at home. Indeed, nearly all our girls (and I do myself) look forward to a trip to the out-apiary as a sort of picnic; then we try to get home so early in the evening as to be not too much fatigued for the next day's work. In the course of time we accomplish *more work* by not crowding our help or ourselves too much. If we push bee-work too hard, and the help gets vexed by the stings, it makes it more difficult to hire help to work with the bees; but if they have it rather easy, and a good time with the work, but still have the stings to endure, they will be more likely to excuse the stings, either in working with the bees at home or at out-apiaries.

#### HAMMOCKS, HITCHING-POSTS, ETC.

A hammock, too, is a great comfort to the apiarist, or, what I like better, a small bench with a raised head-board, that I can carry to any part of the apiary. A hammock swings too easily—one can not rise quickly from it to catch queens in swarming time; and in an out-apiary it tempts children to come there for a swing.

Last, but not least, should a good strong feed and hitching post be put up for the horses, under the shade of a tree if possible. If a feed-trough is just in front of the hitching-post they stand much more contented, and I know of nothing more annoying in connection with out-apiaries than to have the horses uneasy, and sometimes break away, and oblige one to leave the apiary with half a dozen or more bees following, to run to catch the horses. As Miss Wilson says, "It is the little things that help to make our work hard or easy."

MRS. L. C. AXTELL.

[I heartily indorse what you say in regard to these little conveniences in the apiary; and they make all the difference between hard and pleasant work. In regard to hitching-posts, I

suspect that, if I had had a good one at our basswood yard, I should have saved the life of a valuable horse. But you remember that, contrary to what I knew was best, we were in the habit of hitching our horse to a young sapling; and you remember how he broke the thill and pushed the jagged end of it into his heart. For colts, at least, I would have a couple of posts and a cross-rail, so they can not catch the thill around the post and snap it in two. A feed-trough would be a good thing, and would help no little toward keeping horses quiet. I know how unpleasant it is to be working at an out-yard, and to be obliged to look every few minutes to see whether the horses are all right. And while we are talking about hitching-posts, I should prefer the side of a barn, with a ring in it about five or six feet from the ground. Not even a colt then can get its foot tangled or get into any trouble. I believe I would always hitch with a strong neck-strap, passing the strap through one of the rings of the bit. If a stray bee should happen to sting him then, there is much less danger that he will snap the strap or get into mischief. At our Shane yard we put our horse into a stable near at hand, after having taken him out of the thills. I tell you, it is no little comfort to know that a horse is safely stabled, and away from flies and bees, when working at an out-yard; and as this department is especially for ladies, it behooves the men to see that there are good hitching accommodations, and that all parts of the harness are secure. Never drive to an out-yard with a pair of poor thills. Whenever driving within the vicinity of bees, or drawing loads of honey, bees are inclined to follow, and, at best, accidents are liable to happen; so it behooves us to have every thing in good shape.] E. R.

## OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 181. 1. *In cellar wintering, how much ventilation do the hives need, and how would you secure it?* 2. *How much does the cellar need, and how would you secure it?*

I don't know. We winter all out of doors.  
Wisconsin. S. W. E. FRANCE.

I would not bother with any ventilation at all. Keep your temperature up to 45° or 50°, and never mind the ventilation.  
Michigan. S. W. JAMES HEDDON.

Raise the hives from the bottom-board two or more inches, paying no attention to the ventilation of the cellar, providing you can keep the temperature at from 42° to 45°.  
New York. C. G. M. DOOLITTLE.

No ventilation at the top, but all you can readily secure at the bottom. Usually, leaving the entrance wide open does very well; but to have the whole bottom off would be better.  
Illinois. N. C. J. A. GREEN.

I ought to have more experience before answering. I should say, perch the whole hive up on two pieces of scantling. Where this is done I do not think the cellar needs any special ventilation.  
Ohio. N. W. E. E. HASTY.

My best wintering was in a cellar in old box hives, inverted, standing entirely open, a hole four inches square at bottom of cellar, and the same at the top of the opposite side. These

holes were covered so as to prevent strong winds from blowing in.  
California. S. R. WILKIN.

1. Raise one inch from the bottom-board, with an inch block under each corner. I use loose bottom-boards. 2. Three-eighths-inch ventilators running through the roof, and one sub-earth, same size.  
Wisconsin. S. W. S. I. FREEBORN.

We remove the entrance-block, and sometimes the whole bottom-board. We also remove the cap and a corner of the quilt. We ventilate the cellar only by opening the windows occasionally.  
Illinois. N. W. DADANT & SON.

There is no use in being too scientific in such matters. The exact amount of ventilation for hive or cellar would be only conjecture. Let the air in your repositories of bees be comfortable for yourself, and then you will be all right.  
Ohio. S. W. C. F. MUTH.

1. If the bottom-board is left on, leave the entrance open full width for ventilation. I winter with bottom-boards removed. 2. Enough to keep the air fairly pure. If I could I would secure it by means of a stove set in the cellar, the draft of which would be ventilation enough.  
Ohio. N. W. A. B. MASON.

Leave the fly-entrance open. The cellar needs enough to keep the air pure, and we secure it with a sub-earth ventilator. Before this was put in, comb honey would become watery and burst the cells; but now it does not, and the air is as pure as in any room in the house.  
Illinois. N. W. C. MRS. L. HARRISON.

1. I would remove the board cover, spread a piece of cloth (ducking) over the frames and cover with a cushion 3 or 4 inches thick, stuffed with fine hay or chaff, or dry planer-shavings, and give a very small entrance. 2. For a cellar 20x30x7, I would use a 5-inch ventilator connected with the kitchen or some other stove-pipe.  
Vermont. N. W. A. E. MAXUM.

I think the usual summer opening enough. If the hives are so made that they could be raised an inch or two from the bottom-board I should like it; then dead bees will not shut off the ventilation. I doubt whether it is necessary to ventilate the cellar. I do think it very important to keep the temperature of the cellar uniform, from 38° to 45° F.  
Michigan. C. A. J. COOK.

1. That depends largely upon the cellar—its temperature, moisture, etc. We usually give 20 square inches or more at the bottom, as that in our hives is the most convenient point to ventilate. 2. With a small number of colonies, the natural ventilation in most cellars will be sufficient. By natural ventilation I mean that passing through the walls, crevices, etc. With a larger number of colonies, more ventilation must be given. For more particular information on this point I shall have to refer you to articles I have written on that subject.  
New York. C. P. H. ELWOOD.

Give the hives abundant ventilation at the bottom. I secure it by placing the first row of hives on stringers, with the hives 6 inches apart; or, instead of the stringers, lay down hive-covers 6 inches apart, placing each hive over the space thus left. This gives a similar space between the hives, over which place the



next tier of hives, and so on as high as you choose to pile them. This is for open-bottom hives. I should be at a loss to know how to secure the needed ventilation in a fixed-bottom hive. The cellar needs but little ventilation—very little, so long as the proper temperature can be maintained.

Ohio. N. W.

H. R. BOARDMAN.

I use the same rim mentioned in answer 180—500 cubic inches of air space, but with generous ventilators upon the sides, covered with wire cloth; a slot on each side 1x12 inches; the entrance is left open full size. I do not pay so much attention to cellar ventilation as formerly. I think the ordinary cellar will have plenty of means for the entrance of pure air. I believe a rapid change of air is detrimental to the bees. My rule is to test the air once a week with my nose. If sweet and healthful, the ventilation will take care of itself.

New York. E.

RAMBLER.

1. None above, but all you can conveniently give below. For the sake of the bees, I'd like to have the bottom entirely open; but for my own convenience I like a deep bottom-board, leaving two inches of space under the bees, and the front entirely open. On one account this is better for the bees, for then they can be piled straight up, and jarring of one pile will not affect others. 2. More than some think it does. It needs enough so that it will seem fresh and sweet every time you go into it. In a windy time it needs no attention; but when still, if warm enough I'd open doors and windows. A sub-ventilator helps, and a pipe opening into a chimney is about absolutely necessary. A low fire in a stove when weather is not too warm, gets up ventilation.

Illinois. N.

C. C. MILLER.

## HEADS OF GRAIN FROM DIFFERENT FIELDS.

WAX QUESTION REVIVED AGAIN; HOW MANY POUNDS OF HONEY TO ONE POUND OF WAX?

Seeing so much in the bee-journals about how much honey it takes to make a pound of comb, I can not overlook all these articles without saying something relative to my experience. I rather cling to the old tradition of 20 pounds of honey to make one of comb. Now for my reasons: In the summer of 1878 I found an after-swarm of bees on a limb of a small tree. It was the 8th of July when I got them. I put them in a raisin-box which I found. As I knew nothing about bees, I thought it would do all right. This raisin-box was 14 inches long, 10 wide, 8 deep. Now, you see this was a small hive. I did nothing more with them till September, when a friend of mine, who understood bees, came to see me. He took the box up and looked at them closely. He said they would need feeding. The box was about a third full of comb, but not much honey, so I began feeding sugar. I fed 85 worth of sugar, or 50 lbs. The water that was added to this would make it over 60 lbs. Now comes the test. When I began this feeding, the honey season was all over. The hive was only a third full of comb, very little honey in it. Now, when I got through feeding this amount, the hive was filled with comb to the bottom; and when I carried them into winter quarters the hive, bees, syrup and all, weighed 20 lbs. Now, I should like to know what became of all this syrup if they did not

use a lot of it for comb-building. Suppose the bees used 25 lbs. of this syrup for brood-rearing, and 15 lbs. for winter stores. You see how much would be left. I have been keeping bees ever since I got this hive, and I have had good success. Some years I have had tons of honey.

Birt, Ont., Jan. 26.

WM. COLEMAN.

[Your raisin-box, if we figure rightly, would contain about 2 pounds of comb; hence the bees must have built, after feeding,  $1\frac{1}{4}$  lbs. If there were 15 lbs. of stores, and the bees consumed 25 in brood-rearing (they probably did not consume so much), there would be 20 lbs. left for comb-building, or 15 lbs. of honey to a pound of wax. As the bees probably did not consume so much in brood-rearing, the proportion in this case would come pretty near that of the "venerable falsehood," as it has been called; but it should be said, that there are many more reports of experiments in this line that make the proportion all the way from 1 to 3, to 1 to 15. The general average has been perhaps one of wax to ten of honey. It has been shown that pollen makes considerable difference in results. You do not say so, but we judge that at the time you fed your bees they were not gathering much pollen, though it is evident they must have had some for brood-rearing. If you were to repeat the experiment at a time of year when there is an abundance of pollen, using honey instead of sugar syrup, you might see a difference in results.]

### THE PER CENT OF WAX OBTAINED BY A SOLAR WAX-EXTRACTOR.

I made a solar wax-extractor last summer, and extracted all my wax nicely; but toward the end of the summer I discovered that only about 60 or 70 per cent wax was extracted. I boiled a lot (half a market-basketful) of refuse, and it yielded almost a pound of second-grade wax; but I had to squeeze it by hand through a cloth, and then boil it in water to collect it and wash it. Honey is up high now, 15 and 25 cts.

Mr. Doolittle measured to get the distance between combs in some box hives he had; but he says that he measured the marks where the comb was built on to the top-board, and found the distance was  $\frac{1}{16}$  inch between the combs. I bought some comb in old-fashioned box hives from a neighbor last summer, and measured on the top-board and in the brood-nest, and I found that the distance varied from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch all over. They do not always build straight unless the one next to it is straight.

GEO. E. FRADENBURG.

Kansas City, Mo., Jan. 18.

[Your observation agrees with ours.]

### ESPARCETTE; ANOTHER PROMISING HONEY-PLANT.

I wish to call the attention of all bee-keepers to what I believe is destined to be the most valuable honey-plant known in the irrigated district. It is the forage-plant called esparcette, or sanfoin, and described in the catalogue of F. Barteldes & Co., Lawrence, Kan., page 76, as belonging to the same family as alfalfa, and well adapted to light chalky soils, sands, gravels, and barren regions, where rainfall is not plentiful and irrigation is not obtainable. It is a perennial, with hard woody roots; but I am told by those who are acquainted with it, that it can be plowed under. And now for its honey virtues. A small piece is under cultivation at the Government experimental farm near my apiary (about three-fourths of a mile); and while in bloom it was more thickly covered with bees than any other blossoms I have ever seen. This was at a time when they could get nectar from other blossoms, such as apples, a little

white clover, etc. As it is mentioned in GLEANINGS as a valuable honey-plant in England, and grown there for hay, I think it would be valuable in the Eastern States, especially on lands where other grasses do not succeed. Mr. S. Simmins, of England, mentions the plant in GLEANINGS, Vol. X., page 499. It would take up too much space here to mention all the good things said about this plant. I hope to hear from others in regard to its adaptability to heavy soils under irrigation. J. B. COLTON.  
Garden City, Kan., March 5.

RAMBLER'S OUTSIDE WINTER CASES; YELLOW OIL CLOTH INSTEAD OF WOOD FOR OUTSIDE CASES.

Herewith find photo of the hive winter cases I described to you.



In November I prepared two Heddon hives, each hive with two cases and a three-inch rim under the cases. I then covered all with several thicknesses of newspapers, and put over them a hood of yellow oil cloth. This oil cloth is of the same material that oil-cloth coats are made from, and is called "fish brand," as it is prepared with some kind of fish-oil. Coats made from this material will turn water much better than an ordinary rubber coat, and do not crack in cold weather. These two colonies are in splendid condition, though the weather has been quite severe. I give them the entire entrance. This oil cloth can be prepared by the bee-keeper by getting the fish-oil from the manufacturers. I think this is not a new idea, for it has been in use in some apiaries for some time, only upon a different packing. The cost of the oil-cloth case, as I purchased it all prepared, is about 25 to 30 cts., or 20 cts. if made by the bee-keeper. RAMBLER.

[Won't those oil-cloth cases or sacks, after several seasons, get rotten and torn? They are cheap, I know.] E. R.

PAINTED CLOTH INSTEAD OF TIN FOR HIVES.

Friend Root:—You inquire in GLEANINGS, "Who has had lots of experience in cotton roofs for hives?" My experience is somewhat limited, as I purchase my hives and use the covers as manufactured; but I have one chaff hive, made as per A B C, on which, having no new cloth handy, I used an old piece of black calico painted with two coats of white paint. It has stood out six years; and although the paint is all worn off it has never leaked a drop, and the bees have occupied it the whole time, it being the only colony I have not been obliged to feed to keep alive. My experience justifies the assertion that I would rather have cotton cloth painted than either tin or wood. It is lighter and warmer than tin, and never shrinks or swells, like wood. In Florida, the second floor

of two-story verandas are frequently covered with 8 or 10 oz. duck, and painted, giving much better satisfaction than wood, as it keeps water out of the joints, prevents decay, and wears longer than flooring if kept painted.

Pecatonica, Ill., Jan. 20. G. D. RODGERS.

[Thanks. These are just the facts we are after. Whom shall we hear from next?]

A GLIMPSE FROM FLORIDA; HONEY AND ORANGES FROM THE SAME TREE AT THE SAME TIME.

Mr. Root:—Can you gather two crops off the same tree at the same time? We are doing it to-day. While we gathered the oranges, the bees were much more busy gathering the honey from the flowers. Two friends, one from Minnesota, the other from New Hampshire, helped us, just for the fun of it; and didn't they eat oranges! The trees are quite full of bloom, and the bees are just booming. They were so intent in getting the sweets that they let us knock them around pretty roughly. Prospects for a big crop are good. This time last year our bees were starving, but now they have lots of full honey, and are storing now more honey than I ever knew so early in the year.

W. J. DRUMWRIGHT.

Sarasota, Fla., March 3.

CASSAVA—A NEW SOURCE OF HONEY.

send you a specimen of cassava honey. As you are aware, cassava is grown as far north as middle Mississippi for the root, which is an excellent food for man and beast, which latter includes hogs, cows, sheep, chickens, etc. From it is made an excellent starch, and tapioca is also a product. I had quite a patch, and my bees boomed on it almost like buckwheat. It is in bloom from September till frost, or Jan. 1, at least. I have never seen it mentioned as a honey-plant, and I think there can be no mistake as to the source from which it was obtained.

IRVING KECK.

Bowling Green, Fla., March 14.

[Friend K., I believe you have the credit of being the first one to mention honey from the cassava, and we have no doubt that you are right about it. If we can find plants that produce a regular article of commerce, like tapioca, we shall be getting ahead some. Will other readers of GLEANINGS who live where this plant is in cultivation, please give us their experience? Perhaps we had better commence using tapioca more largely, that there may be a greater acreage of the plant grown. The sample of honey is very fair, though a little off in color, and having a faint taste that would suggest honey from the vicinity of the tropics. Altogether, however, I think it would compare favorably with honey from palmetto and other similar sources.]

BOARDMAN'S SOLAR WAX-EXTRACTOR; A CORRECTION.

In regard to the solar wax-extractor and honey-evaporator, described in GLEANINGS of Jan. 15, make as many as you please. I do not propose to go into the supply-business, and shall at most make but a few of the extractors, in an experimental way.

I noticed in the description two rather misleading errors. On page 50, second column, 6th line from the top, the description reads, "The lower end of the extractor is covered." It should read, "*cornered*." The corner is taken off. Again, near the end of the description it reads, "painted a drab color." It should read, "*a dark color*."

H. R. BOARDMAN.

East Townsend, O., Feb. 2.



#### HOW TO GET RID OF A FERTILE WORKER; AN EASY WAY.

I for one like to have GLEANINGS sent after the time paid for expires. I noticed in GLEANINGS for Dec. 15, one writer (C. C. Miller, I think) tells how to get rid of fertile workers. I read of a way in the *Api.*, I think, which I tried last summer. No doubt you "old fellows" know *all* about it, but it is an easy way for a beginner. Set the hive with the fertile worker on top of one of the strongest colonies you have. My strong colony had a case of sections on, which I took off and put on top of the now two-story hive. I left them there about four weeks. I had a good deal of trouble in handling this double colony, not because the bees were cross, but because there were so many of them. They just *boiled* over whenever the hive was opened. When I separated them the queen was with the top hive. The lower hive started 14 queen-cells. I cut out all but two, and in a few days one of these, and I soon had a laying queen. Both colonies were in good condition for wintering with a little surplus. JOSEPH F. BARTON.

Chicago, Jan. 1.

#### CLOSED-END FRAMES HANGING FROM THE CENTER.

I use a closed-end frame that hangs from the center, on tin rabbits on the ends of the hive. This frame is cheap to make, and I think it is perhaps easier to handle than some. It is really a hanging frame, and is also a very simple reversible one as it rests (or hangs) from the center. Hanging, as it does, from the center, on tin rabbits, out of the way of the bees, they do not stick them down much if any, so you can slide a body of these frames apart and ascertain the condition of the center of your colony without disturbing them much. I have used this style of frame two seasons. At first I thought they might be more objected to in handling than a swinging or loose frame; but now I find I can get at what I want to ascertain at the center of a colony, in much less time than with any other frame I have ever used. I think there isn't any gain in handling a brood-chamber over too often; and for many advantages, I think the closed-end frames will be of common use. W. H. NORTON.

Skowhegan, Me.

#### ANOTHER SWARM THAT LIVED AND PROSPERED IN THE OPEN AIR.

Did you ever know or hear of a swarm of bees building their comb in the open air, in the limbs of a tree, in this country? I believe they do in tropical countries. In going through my pear orchard in November, after the leaves had fallen, I saw what I took to be a hornet's nest; but on examination I found it was a large bunch of comb, built by a swarm of bees. I got a ladder, and took it down. It is quite a curiosity, and I think it ought to be preserved. If you would like to have it to show to your visiting friends, I will send it to you. W. W. YOUNG.

Worthington, Ky., Dec. 18.

[Bees don't very often build combs in the open air, but we get reports of it from time to time, but more particularly from California. The comb might be a curiosity for the World's Columbian Fair. Dr. Mason, can't you use it? If so, give our friend instructions how and where to send it.]

#### IS IT CHEAPER TO RAISE BEES BY THE POUND THAN TO BUY THEM?

What will it cost to raise, say, 100 lbs. of bees by feeding sugar to the required number of hives, supposing the weather warm, plenty of pollen to be gathered within a short distance,

but no honey, or too little of it to be considered? Or is it cheaper to buy than to raise them by the pound?

Knoxville, Tenn.

ADRIAN GETAZ.

[It is cheaper to raise the bees by feeding, usually, than to buy; just how much, we can not tell. A good deal depends upon locality as to the price of bees. In a good many places, bees that are blacks and hybrids can be bought for a mere song after a poor honey season.]

#### QUESTIONS REGARDING FIXED FRAMES.

1. In adopting the fixed distance with closed-end-bar frame, will it interfere with the interchanging of frames throughout the apiary? 2. Is it possible to get combs built so true and straight that they may be used *anywhere* and in *any* hive, without pinching bees, or *vice versa*—widening the fixed distance between combs? 3. Will it be practicable at all times to clamp the frames tight together with follower and wedge? I should like very much to hear the opinion of the Solons. E. S. BROOKS.

Silverton, Or., Jan. 21.

[1. There is no trouble about interchanging frames for fixed distances; at least, bee-keepers who own colonies by the 500 seem to experience no trouble.

2. Yes, sir. That is just the way to get combs straight and true, by having fixed distances.

3. There will be no trouble if your hive is made right. If the Solons of fixed distances disagree with the answers made above, will they please correct?]

#### SAWDUST IN PLACE OF CHAFF, ETC.

1. Is sawdust good packing for chaff hives? 2. Is the Gallup hive as good or better than the Langstroth? 3. I have a large underground basement under the barn. Would it be a good place to winter bees in one end, and have stock in the other, by taking up the floor where the bees are? It is a stone-wall basement, well ventilated. It hardly ever freezes in it.

LEWIS LEIT.

Mayville, Tuscola Co., Mich.

[1. Yes, nearly as good, only it makes hives too heavy. Wheat chaff is the lightest of packings unless we except dried leaves. 2. There is no difference—at least, reports show none. It is not so much the frame as the bee-keeper, and the *protection* he gives the bees. 3. We should think so.]

#### MANUM'S WINTERING.

My bees had their first fly this season March 11. I opened them up in two apiaries, and found them in good condition. They appear to have wintered well. We Vermonters are very hopeful that the coming season will be a good one—at least, the prospects are good.

Bristol, Vt., March 17.

A. E. MANUM.

#### A CAUTION IN THE USE OF SULPHURIC ACID.

Why did you not caution the friends about the danger of putting sulphuric acid into hot water when commenting on F. A. Salisbury's article, on page 121? I call your attention to this, lest some one should lose an eye, or be badly injured otherwise.

J. S. HUGHES.

Mt. Zion, Ill., Feb. 19.

[There have been a great many accidents with sulphuric acid; but, used as given in GLEANINGS, we think nothing serious will follow.]

#### HOFFMAN FRAMES QUEEN-EXCLUDING.

*Friend Root*:—I am making an improved Hoffman brood-frame. I am cutting out on

each side of the top-bar scant  $\frac{3}{8}$  of an inch, which leaves about  $\frac{1}{8}$ , which I think will make them queen-excluding. I will try two or three hives with these frames next season, if I live. I should like to have some one else try this kind of brood-frame, and report through GLEANINGS.

H. MANSPERGER.

Lewistown, Mo., Jan. 26.

[You will hardly be able to make Hoffman frames queen-excluding in the way you suggest. Propolis will accumulate between the edges so as to widen the spaces. You may be able at first, with good workmanship, to make it work.]

#### GLUE FOR LABELING TIN—ONE THAT GIVES PERFECT SATISFACTION.

As I was unable, during the busy season, to "keep up with the times," I have been reading up GLEANINGS more thoroughly during the winter months. I see in April 15th No., 1890, your inquiry for a better plan for fastening labels to tin. Here is a recipe for a glue that has worked perfectly. I have used it five or six years, and have never known a label to get loose when properly applied with it. It was given me by my friend D. E. Brubaker, now of Mt. Morris, Ill., while visiting me in 1886. He says it has given him entire satisfaction for ten years:

Stir 2 oz. pulverized borax into 1 qt. boiling water. When dissolved, add 4 oz. gum shellac. Stir while it boils, until all is dissolved. Apply with a brush in the usual way.

I prefer using a little less water, especially if the labels are small and stiff; then if it gets too thick to apply readily, warm it a little or add a little hot water. After applying the label I press a damp cloth over it to press out and wipe off any surplus glue that may come to the edge.

Mt. Vernon, Ia., Feb. 14. OLIVER FOSTER.

[The following is what Mr. Brubaker himself says regarding it, in answer to a letter from Mr. Foster:]

Oliver Foster—Dear Sir:—In reply to your inquiry as to whether I would have any objections to your giving the readers of GLEANINGS my recipe for gluing on labels, I will say, most assuredly, I have none, and I feel that the readers of that excellent paper are entitled to it. I have found the preparation to give entire satisfaction for the past ten years. From my experience you can recommend it with entire confidence.

D. E. BRUBAKER.

Mt. Morris, Ill., Feb. 11.

[We tried a sample of the glue sent by Mr. Foster, made according to the directions above. It makes the labels stick with a firm grip on tin, and is, perhaps, the best of any thing ever given. We have long wanted some suitable glue that would answer the purpose. Almost any thing will stick labels to glass; but when it comes to tin it is another thing.]

#### DO BEES PROGNOSTICATE?

I will mention, in confirmation of your suggestion, that bees do not prognosticate the coming season, but are influenced only by present conditions. About 32 years since, I lived in Guernsey Co., O., and kept bees. I think it was the 4th of June, 1859, we had a hard freeze, killing the corn. The wheat that was headed out, and all the clover that was in bloom, was killed, together with almost all other bloom. The bees had had many drones, and were ready to swarm. Within three or four days after this, the bees had killed all their drones, even destroying the drone larvae. But soon after, bloom again became abundant, the bees reared a new set of drones, and swarmed as usual.

Ventura, Cal., Feb. 10.

R. WILKIN.

#### WHITEWASH AGAIN, FOR HIVES.

I see on page 51, in your foot-notes to William G. Hewes, you speak of whitewash for hives. I would say that, to make whitewash for hives, use whiting and glue, about  $\frac{1}{4}$  lb. glue to a common pail of whitewash. It will not crack off, nor soil one's clothes, and will last much better than lime. It is also good for filling old buildings preparatory to painting. It should be used hot.

JOHN BURR.

Braceville, Ill., Jan. 25.

[We have used glue considerably for whitewashing the inside of our buildings, but we were informed by our "boss mason" that glue would not answer for outdoor exposure—that grease or oil would have to be used instead.]

#### CLEAN GRAHAM FLOUR.

Buy the wheat just as soon as thrashed, and before it is put into a dirty bin and run over by the rats and mice; then look it over by putting a gallon or so into a large pan, and pick out the bits of straws and hulls, and grind it on a small machine attached to a horse-power or wind-mill. Mr. Axtell has one attached to his horse-power. We can grind it very fine by grinding it twice, or it may be ground very coarse, and used as cracked wheat. If boiled until tender, and eaten with honey and new milk or cream, it is delicious and very healthful, especially to one troubled with indigestion.

A good many told me, during the past year, they could not get good graham flour since the roller process came into use for making white flour, and that the graham they now get seemed more like poor white flour mixed with bran, which can not be nearly so healthful as to get good wheat and make our own flour, which makes very sweet bread.

As it is difficult to get an oven hot enough to bake graham gems made of only flour and water, so as to be light, I usually make my graham bread with yeast, as I do other light bread, first setting the sponge of white flour, and, when light, mix with graham flour. Mix just as stiff as can be stirred with an iron spoon, or just as soft as a loaf can be formed with the hands, and place in pans to bake, or let it stand to rise once after putting in the graham flour. In that case a little soda should be added, as graham bread sours more quickly than white. It also rises more quickly, and should be kept cooler while rising, if intended to be baked at the same time as the white bread.

#### HOW TO COOK EGGS.

Not until a few weeks ago did I learn how to cook eggs so as to be healthful, so that the white will be thickened like starch, but not be hard and leathery, and at the same time the yolk will be set also. Put fresh eggs into a cup or kettle of cold water, and let it stand on the stove till they come to a boil; then remove immediately. If the stove was not too hot or too cold you will find them cooked very nicely.

Roseville, Ill.

MRS. L. C. AXTELL.

#### SPRAYING FRUIT-TREES.

I want to spray my pear, cherry, and plum trees, when in blossom, with Paris green. My bee-stands are all about them. Will the poison affect the bees or honey?

A. T. WHITE.

Antioch, Ill., Feb. 5.

[Spray your trees just after the blossoms have fallen off—earlier or later will do but little good to the trees. After the blossoms are gone, of course the bees will not visit the trees, and no harm will result.]



## SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

### A WONDERFUL AND STARTLING DISCOVERY, EMANATING FROM OUR EXPERIMENT STATIONS.

Just now we have something that seems indeed too good to be true. I do not know who first suggested the idea, but our Ohio Bulletin gives the credit of the experiment to the Cornell University, at Ithaca, N. Y. Like many other great strides, it seems that several of the Experiment Stations have had a hand in it. For some time back, reports have shown that varieties of strawberries that do not bear pollen have grown greater crops and larger berries than the perfect (or pollen-bearing) varieties; and it was suggested that this was due to the fact that it requires much of the energy and strength of the plant to perfect the pollen. Recently our Ohio Station discovered that asparagus-plants are both pollen-bearing and non-pollen-bearing, or male and female; and that, if we select only the male plants, or those that produce no blossoms or berries, we shall get much stronger shoots. And now Cornell comes in and tells us that we may cut the tassels from every other row of corn in our corn-fields; and that those stalks or hills not allowed to bear tassels will give—what do you suppose? Why, not only larger and better corn, but *50 per cent more* in quantity. In the experiments, the tassel was snapped off just as soon as it could be done handily, and the field was gone over three times. In the Bulletin, a full record is made of the experiments. That there might be no mistake in the conclusions reached, "the aggregate results of 24 distinct duplicate experiments" were taken, "each of which alone showed the same thing as the aggregate of all." If this is really true, it bids fair to be one of the greatest achievements the world has ever known in agricultural science; and, of course, the same thing, or something similar, may be applied to all plants that bear pollen on one plant and fruit on another. In order to test it early we have planted some corn in our hot-bed across the way; and just as soon as the tassel is visible, "amputation" is to be commenced. Of course, enough pollen-bearing stalks must be in the vicinity to insure perfect fertilization. The success of the experiments is based on the fact that nature furnishes a great surplus of pollen, as plants are ordinarily grown and closely cropped on our fields. A parallel case is the restriction of drone production in our bee-hives. In their native state it is quite important that every hive should rear many thousands of drones; but what would be thought of the apiarist nowadays who would permit drones to mature and issue by the thousands in every hive of an apiary of 100 colonies or more? One hive in a hundred could nearly if not quite rear drones for them all; and the wonderful fact that confronts us now is, that possibly one stalk of corn can furnish pollen-dust enough for not only two, six, a dozen, but may be *twenty* stalks of corn. Who knows? And is it not possible, dear friends, that farming is going to pay after all, when we just get the *hang* of things, and get acquainted with old Dame Nature?

#### DO COMMERCIAL FERTILIZERS PAY?

In the report on corn of the Ohio Experiment Station for February, 1891, we find the following:

No practical benefit was received from the use of commercial fertilizers. The increased yields from the use of stable manure probably repaid the cost of the application, and left some profit.

Now, friends, this is serious business. Farmers are complaining bitterly already that their crops do not pay cost. If in addition to this they are paying out their hard earnings for commercial fertilizers that don't pay, it is a fearful thing to contemplate. The trouble seems to be, that so many experiments are made without testing alternate rows with no fertilizers. The use of phosphate on rye and buckwheat, on our own grounds, pays, without question. But I have never been able to demonstrate to my satisfaction that any of the chemical fertilizers do any good whatever on sweet corn and most other market-garden crops. Stable manure, guano, ashes, and, in some cases, lime, produce marked results. But I have for years been coming to the conclusion that it paid us to put our money into stable manure; and for vegetable-plants in our plant-beds, guano often pays, unquestionably. Lime or ashes used with guano, or with stable manure, often make it act more promptly. The lime also destroys insects, and, where used in sufficient quantities, it destroys angleworms by the thousands. Now then: Before you invest very much money in any commercial fertilizers, experiment by putting the fertilizer on strips clear through your fields. After you have shown conclusively, by experimenting in this way, that it is worth what it costs, then invest, and not before. Two or three years ago I saw so much said in the papers about the nitrate of soda that I got a bagful. As we had a very pretty lawn in front of the house I thought I would astonish the family and the neighbors by showing them what it would do. So I marked out the letters on the lawn, "A. I. R." Then I sprinkled nitrate of soda along the letters. As I did not know just how much to put on, I put it very heavily on some letters, and lighter on others, and watched anxiously for the extra growth and color where the nitrate was put. Well, the lawn got to be very nice and green all over; but during the whole summer I saw nothing that enabled me to detect a particle of difference in the growth or color of the grass where the nitrate was put on the letters. Then I tried the nitrate on other things; but at the present writing I have never found it to produce any benefit perceptible to the eye or to other tests, except on a crop of spinach. Just now I have been testing it on spinach in the greenhouse; but even there no one can see a particle of difference where the nitrate was put.

Since writing the above I have been reading what "Joseph" has to say in the *Farm and Fireside* about the use of nitrate of soda. Here is a short extract:

I have repeatedly spoken of the really wonderful effects often noticed from the use of nitrate of soda. I shall never fail to use it largely on spinach, onions, cabbage, celery-plants, etc., hereafter.

Other writers have spoken of it in the same way. Now, there is something about this that troubles me. I wonder whether it is possible that our poor success is on account of the heavy rains we have been having for two or three seasons back. Joseph speaks in the same article of their severe and long-continued drouth. Is it possible that nitrate of soda would overcome to some extent a lack of moisture? Can't our experiment stations explain these wonderful differences in results?

#### SOME HINTS FOR SOWING CELERY AND OTHER SMALL SEEDS.

Cultivate your flower-garden;  
All weeds and thorns subdue;  
Negligence is hard to pardon,  
And a ways will be charged to you.

Localities differ. This should always be borne in mind. For instance, when celery is

sown in the open ground, where it rains *every day* nothing would be required but a border of a few inches around the elevated seed-bed, to keep the seed from washing away. In a place where the seed-bed might get very dry, however, a coarse fabric, say a covering made of bran-sacks, should be used. For the first few days, until the seed germinates, lay it flat on the ground, and it will keep the soil and seed from being disturbed while using the sprinkler, and guard against too heavy rains, and to give, partly, sun and shade. The bed is also warmed better by the sun, where thus covered. I have observed that a great amount of seed, money, time, and work, is annually lost because *seeds do not germinate*, even though the seed is good. The time is thereby irretrievably lost. While the seed is germinating, small strips of wood should be nailed on the frame, near enough to keep the cover a few inches above the bed. The cloth should be nailed to the frame, with laths at one side. It should be fastened with loops on the other sides, in order to open quickly and give the full sun if need be.

Closer attention is required by delicate and small flower seed. We sift on the seed about  $\frac{1}{8}$  of an inch of sandy loam, and press it down with boards, in the fashion of using snow-shoes. The smallest seed does not require any covering, but only some pressure, and a shade for some days with a piece of cheese-cloth. Of course, the nature of the flower must be known—some require almost a full sun, and others nearly full shade. If the seed is sown in nearly dry soil it should not be immediately drenched. Better wait 12 or 24 hours. In watering we should imitate nature—water only when required, but then thoroughly. Imitate dew, with a syringe. Suppose seed is sown in damp soil, and pressed down, and the bed is allowed to become dry afterward; then a partial failure is sure to follow. The seed will swell immediately; and, if allowed to dry, will shrink again. The germinating power is then checked or destroyed. The result is, feeble plants, or none at all. Again, when seed is kept too wet at the start, it will burst open, and the same results follow.

THEODORE LOHF.

Denver, Col., March 11.

#### RAISING POPCORN—A NEW INDUSTRY FOR THE BOYS.

Mr. H. R. Wright says: "We are hearing from our advertisement from every quarter." Inclosed with the above was the following, which we presume is in answer to inquiries brought out by his advertisement:

Dear Sir:—We bought last season 50 carloads of popping-corn of all varieties, and found the "eight-rowed" (or "Shaker") variety gave best satisfaction in every way, maturing earlier and yielding more per acre, and, having long ears and no nubbins, husks easier. Having a very small cob, it cures quicker and yields more shelled corn than any other variety. It has a large round kernel, and pops larger than any other. It is very white when popped, as all popping-corn should be, for no yellow, red, or any colored corn looks well when popped. If this variety of corn is properly cultivated it will yield per acre equal to common corn, and we never bought any less than  $2\frac{1}{2}$  to  $3\frac{1}{2}$  cts. per lb., which is about three times as much as common corn sells at. We buy all varieties, and will make a price at any time on receipt of sample. We want 100 carloads next season, at least. To make a sure success of growing it, procure the best possible seed. Plant early, and not near any other corn. Leave in the field on stalk as long as possible. Do not shock nor allow it to sweat in husk or anywhere else. Weather-cure as

much as possible, and don't kiln-dry or force dry by any heat. The only proper way to cure corn is by freezing weather in a crib, or in an open building, spread out. It will always be ready to pop satisfactorily by January or February. You can't plant too much. We will buy all you raise, at good prices. We will select seed ears of any variety you wish, and send you, on receipt of 10 cts. per lb. for any amount you may want under 50 lbs., or 8 cts. for over that amount.

H. R. WRIGHT.

Albany, N. Y., March 21.

[Now, boys, here is a chance for you: and I suppose the "new discovery" (pruning off the tassels) will work as well with popcorn as with any thing else. Why shouldn't it?]

#### RECIPE FOR CANNING PUMPKIN.

I have canned them successfully for two years, and used a mixture of field pumpkins. Cook till tender, put through a sieve, cook again as long as there is water in them. The secret lies in thorough cooking. I used tin cans, and sealed them with sealing-wax.

MRS. J. K. MCCLURY.

Lima, Allen Co., Ohio.

## MYSELF AND MY NEIGHBORS.

Feed my lambs.—JOHN 21:15.

Yesterday I had the toothache. I suppose it is a good thing to have the toothache once in a while. There are several lessons it teaches us. One is, to be thankful when we do *not* have it. Another is, to resist with all our might the temptation to be impatient and hasty when writhing under pain we can not escape. Another is, it bids us have sympathy for others when they are suffering. When it first came on I stopped it with Porter's Cure of Pain. Now, it has been so fashionable lately to go on about drugs and patent medicines, and the like, I do not know but I needed a little lesson of charity in that direction. The above remedy I do think a boon to mankind. It relieves pain almost instantly—that is, in the majority of cases. Finally, during the severe attack yesterday, however, even my old remedy did not suffice. I bathed my face until the tears ran from my eyes, and my mouth smarted so from the hot liniment that I could only walk the floor and pray for patience.

"But, why didn't you have the tooth pulled, Bro. Root?"

Well, I did not want to spare the tooth; and, besides, I remembered how fearfully it hurt me when I had just one tooth pulled, perhaps twenty-five years ago. I had been staying in a warm room, and keeping my face up by the steam-pipes, for many times I have found relief in that way. I happened to look out of the window, however, while suffering, and saw something in the new hot-bed that needed my attention. I put on my overcoat and rushed out, and got so busy directing the boys that I either forgot the toothache, or else the toothache forgot me; and then I discovered that I felt better out in the open air than I did in a warm room. How many things there are to learn in caring for these bodies of ours! and how often we blunder before we find out what nature wants! I did not have any more of the toothache until meeting-time. Revival meetings are going on at one of our churches; but as there was a cold damp east wind, my wife urged that I had better stay at home. Some way my conscience seemed to tell me, however, that I ought to be there. So I started. It is a



full half-mile to the church. Before I got a quarter of the way, the east wind started my tooth to aching again, and I turned around, a little sadly, and went back home. I tried to have faith to believe that God had some *lesson* for me to learn, in a line with this toothache. But I could not see just how any good could come from being kept from church. I went back home with a rather small amount of faith, I must confess. I took a book and sat close up by the base-burner, and *this* time the heat of the stove seemed to drive the pain away. When I had sat there for perhaps half an hour, and finished the book I was reading, I looked at the clock and wondered whether I hadn't better go, even if it *were* late. With my thorough toasting by the stove I concluded I could keep pretty warm until I reached the church. I felt a little happier after I started. The sermon was more than half over, and I disliked to disturb the preaching. But there were no seats except away up in front. I started once to go up, but I hesitated and turned back. The usher whispered that I might get a seat among the boys at the other door. Now, I had not a glimpse of a thought that there was any *providence* in my being late, or in the fact that I must ask the boys to squeeze up together a little, and give me a seat in that particular corner. There was a great lot of boys all around me, some of my own, and one or two among them that I had not got along with very well. I remember wondering what had induced so many to come. From what I knew of them I did not think they ever had very many if any serious thoughts, and they did not look then very serious either. They were not noisy, but there was quite a little exchanging of glances, and smiling; and in my poor feeble attitude of heart at just that time I could not see that there was very much in the sermon to interest them. It seemed away above their heads. To tell the *truth*, I got drowsy, and I meditated slipping out and going home as soon as they commenced to sing the first hymn at the close of the sermon. One reason why I got drowsy was, that the only window that afforded any fresh air had just been closed. An old gentleman with a rather bald head found the breeze rather too much for him, and signified to the janitor to close it. As he shut it clear up, I almost gave a groan, thinking that my spirituality, for the evening at least, was about extinguished with that last bit of fresh air. Now, one of my crosses, as you may remember, is to be obliged to listen to a sermon when the room is full of bad air. It actually makes me stupid and sort o' crazy. I do not mean to find fault, because I am not now in a fault-finding mood. But I made up my mind, that, if I ever sat near a window, and found the draft was making me take cold, I would surely take a seat somewhere else, instead of asking to have the air all cut off from the rest of the congregation. The sermon closed, finally, and the pastor's wife gave an excellent talk to the boys; but the air was so hot and close that I had not much faith that even it could do anybody any good. Perhaps I had better say, that *Satan* suggested the above thought, and may be the air was *not* so very bad after all. If others did not notice it, then it was better for me to pray for grace to bear it as best I could. Finally they rose up to sing. The pastor's wife urged them to come forward and bring their friends. To my surprise, quite a young boy—in fact, the youngest printer in the office where I am writing—commenced going to one and then to another of his companions, exhorting them to come right along *that night*, and make a start in the Christian life. I was surprised at the ease and self-possession with which he (usually bashful and diffident) undertook a task that

would have been a hard one for myself. But when another young boy in my employ *assented*, and started to go with him up to the altar, I was still more surprised. A lot of young girls started in the same way. I began to wake up. I looked about me and caught the eye of one of the boys I have been praying for, and who works near me almost every day. Then I remembered something that his aunt had said to me some time before. It was something like this:

"Mr. Root, you do not know what a high opinion E. has of you. He thinks whatever *you* say is law and gospel, and I do believe that a word from you would have more effect than any thing the minister or even his *own relatives* could say to him."

Could it be that this boy was thinking of going forward too? and was it possible that an invitation from *myself* was all that was needed? But then I remembered that, only a few days before, somebody had heard him swearing right straight along, and that, too, when he was at play, and not angry with anybody. Something said, "Why, Mr. Root, it is not of any use; it will not be *best*, anyhow, to ask a boy to come forward to the anxious-seat who does such things as that. There can't be any *real* desire about him to be a Christian." Just at this point, however, they started up

"Just as I am, without one plea."

I prayed that God would guide me. Then I moved over to where my young friend sat. I talked with him some, but he was bashful and backward; yet something in his look seemed to tell me that the Holy Spirit was at work in the child's heart. And then I remembered how earnestly I had prayed for the Holy Spirit that morning, when I first got out of bed.

"E., will you not come forward and make a start for Christ, if I will go along with you to the anxious-seat?"

He looked me square in the face as he replied promptly and decidedly, "Yes, Mr. Root, I will go."

I went up with him, and whispered to the pastor's wife that I had brought one of my boys. You can not think how her face lighted up as she took him by the hand. She and her husband had been laboring for two weeks, working hard and earnestly, to the end that the result of the union meetings which we have been holding all winter might not be without a general revival. I knelt beside my young friend, and prayed for him. But another boy's face kept getting before me. It was the face of one with whom I had had much difficulty. That is, he had been reported so many times for bad behavior that I had talked with him again and again, and had even suspended him; and he had been dismissed finally, as I had supposed, only a few days before. After every reprimand, however, he had confessed his fault, and begged to be tried again. This had failed so many times, however, that I had lost heart. Just the day before, he said, with tears in his eyes, "Mr. Root, I know that I do not deserve another chance. I know it is just as you say, and I do not see what is the matter with me. It does not seem to be of any use for me to try to be good."

His principal trouble seemed to be, he was so full of fun and mischief that he not only wasted his time, but he hindered others more than he earned, and I got to thinking that forbearance had ceased to be a virtue—that he really did not *care* very much after all. This boy, however, had come to meeting; but I looked at his face and decided that he had come more out of a spirit of fun than for any thing else, and I gave up thinking it would be best to ask him to

come forward. Then I thought of my little text—"O thou of little faith!"

I left the anxious-seat and went back, and pushed past the other boys until I came near A.

"A., do you not believe that, if you and I both should go forward to that anxious-seat, and both take a start on the rock Christ Jesus, we could get along together in our business relations? Will you not come forward if I go with you as I did with E.?"

"Mr. Root," said he, "I am ready to try it." And then I knew he was in dead earnest. I led him up, amid a general rejoicing. Now, dear friends, several temptations beset me at this point. I have been getting older and steadier within the past few years. I hope I have been getting where God can consistently trust me with spiritual prosperity. But after *two* boys had come right along with only a little exhortation, it seemed to me that I was going to get all of the boys in that corner—yes, whole seats full of them. Well, I am not sure but that such a thing *might* have been possible, if nothing but Christ Jesus had shone from my face when I went back to talk with them. The third one had started, and I thought he was coming forward. Then he hesitated, and said that he was afraid that he was rather young to take such a step. I talked with several more; but the example of one holding back had at least some effect on staying the rest. I was like poor Peter when he started to walk on the water, and began to get a little vain of my success. Now, somebody may ask right here, "Mr. Root, why do you take it for granted that it was a wise thing or the best thing to ask those boys to come forward, under the circumstances, especially the very young ones? Is it well to have them make such a start without counting the cost, and then have them give up and go back, as so many of them do?"

Well, I have studied on this matter, and I have prayed over it a good deal, and I have for years watched the result on boys who have thus started. "It is well to have them start. I never knew a boy to make such a start but that it proved to be a safeguard and a protection round about him. If he has been swearing, the consciousness of having made such a public promise is quite sure to keep him from it. Unless something extraordinary happens, the result of making such a start (in any of our churches) has always been, so far as I know, *good* and only *good*; and it almost always proves the turning-point in the boy's life. It often results in a complete change of companions and associates. The books he reads begin to assume a different character. His purposes and desires at once begin to change. He begins to *love righteousness* and to *hate iniquity*."

As we knelt at the anxious-seat, a whole long row of us, a heavy responsibility began settling down upon my poor self, and I began to pray most earnestly, "O Lord, help me to remember the exceeding sacredness and solemnity of the step I have taken to-night. These young friends have given me their confidence; they have decided to be guided by my wisdom, and the future with them largely depends upon my poor self. Is it possible that I shall forget this sacred time and place, and be harsh and severe, as I have been in times past, perhaps, when these poor boys were doing the very best they knew how? Lord, help me to have more charity and more willingness to overlook mistakes; and help me to keep in mind more constantly the fact that I was a boy only a few brief years ago. Lord, help me in this most important duty that now devolves upon me, of "feeding" and ministering unto the precious "lambs" of thy fold. Help me to be more patient; help me to be more kind; and if it be indeed true that

these (the lambs of thy fold) are looking to me with more faith and confidence than toward their pastor or relatives, O Lord, *help* me to be worthy of this confidence they have seen fit to repose in me. Help me to believe that, if they do not hold out, it will be largely my own fault."

I felt at once, as soon as I began talking the matter over with these boys, that *they* greatly feared they might not hold out, or that they might do something that would be inconsistent with even a young follower of Christ; therefore we were, as it would seem, standing on common ground. I am older than they, and I have been years in Christ's service; I am a teacher and an exhorter. They look to me with confidence, and wish my opinion in regard to this matter of starting out to be a Christian; therefore it is far more important that *my* example should be good and wise and kind. I feel to-day, it seems to me, as I never felt before, how much we need grace from on high. Yes, I need it just exactly as the boys need it, for more is required of me. And it is not the boys alone that live here in Medina, or that work at our factory who need praying for. It is the boys all over the United States of America: nay, wider still—the boys all over the wide world—the lambs of the flock. And the *boys* are by no means the only *sinners* concerned. The ministers have a responsibility to bear, and the parents and teachers. Jesus said to Peter, "Feed my lambs." Now, there are not only lots of lambs to be fed, but there are lots of Peters who are doing the feeding. May God help the Peters! May God help you and me, my friends!

I have been told that the children read these Home Papers, and the young men; and I know many parents and spiritual teachers read them also. In view of what I have said this morning, do you not, dear friends, all of you, feel the responsibility and the need of a deeper work of grace in your hearts? In view of this shall we not pray ever so much more earnestly than we *ever* have before, "Give us, O Lord, of thy Holy Spirit that we may discharge well and faithfully this office that we can not escape, and that so continually devolves upon us, of feeding and caring for the lambs of thy fold?"

The next evening I succeeded, through Christ Jesus, in bringing forward another of these boys. But this was the close of the revival meetings, and some way the boys had got a start in this new life, and it did not seem best to stop the meetings entirely; therefore two more meetings were held the present week. They were not so well attended as formerly, but there were many young people present. The pastor invited me to talk 15 minutes the last evening. Some way, when I planned my talk those boys and the young people kept coming up before me in my mind's eye again and again. I chose for my text, "The wages of sin is death; but the gift of God is eternal life through Jesus Christ our Lord." Before I began speaking, the pastor said something like this: "Mr. Root, the people of Medina could not have paid you any higher compliment than they have. See the youthful faces before you, and especially a lot of boys who have come to hear you talk. If we get the children we shall have the parents by and by." At the close of my talk, two more boys rose up and declared before the congregation that it was their purpose to serve Christ Jesus henceforth and forever.

At the close of the meeting the good pastor called them all up around him; and by encouraging words, each boy rose to his feet, one after another, and gave his testimony in a few simple words. Many of these boys were so exceedingly bashful and timid that it was a very great cross-



indeed for them to speak in public at all. But their bright and smiling faces, after they had borne their cross in their own boyish way, would certainly have convinced anybody of the honesty and sincerity of the work in their own hearts. One young friend, who assists in the counter store, spoke something like this: "It pays to be a Christian, because it makes one feel happy while about his work, all through the day." Most of the testimonies were about as brief, and much in this line; and when I meet these boys as I pass along through our different departments, the very sight of them does me good. The report comes from the bosses of the different rooms, that they could not ask for better boys than we have now. And yet this is the report we get of some who had made us the most trouble before our revival meetings. Now, friends, does it very often, if ever, happen that any one starts out to follow Christ before he is old enough? Remember the injunction, "Feed my lambs."



And when thou art converted, strengthen thy brethren.—  
LUKE 22: 32.

BEES in "our cellar" are doing well,—none lost so far, that we can see. April 15th may tell a different tale, however.

DR. MILLER tells how, without perforated zinc, to raise queens in a colony already having a laying queen, on page 270. It's a good suggestion.

We learn from one of our French exchanges that there are in Germany over 20,000 members in the various apicultural societies of that country, and that the annual product of the bees exceeds 22 million francs.

It takes extraordinarily good editing to boom a bee-journal that uses poor paper and ink, and is otherwise slovenly in typographical appearance. Perhaps some of the bee-journals that have started this year may take a hint. Bee-keepers are good judges of printing as well as some other folks.

#### EDITORIALS AND STRAY STAWS.

DR. MILLER says, on the first page of the journal, that the editorials are "covering so much ground in an interesting manner that, in a little while, I shall have nothing to manufacture Straws from." Why, doctor, you are crowding on one end of the journal, and we on the other. We shall have to quit crowding you, that's all.

#### ANOTHER NEW BEE-JOURNAL.

VOL. I, No. 1 of the *Missouri Bee-keeper*, a monthly edited by E. F. Quigley, is before us. It contains 16 pages, with a neat tinted cover, and its first appearance is good, compared with the way a good many bee-journals start. Let's see: A month ago or so we said we counted up seven bee-journals that had started since Jan. 1, and this one makes the eighth.

#### A SUGGESTION TO CORRESPONDENTS.

We should be obliged to the writers for GLEANINGS if they would scatter head-lines

through their articles. We are much more apt to choose such, when they are plainly written, than we are articles with no head-lines and no indication what they are about. Very often, by glancing through a manuscript, the head-lines give a hint that the article should be used at once, if at all. While there is such a great stack of unused manuscripts, and good ones too, those published will usually be the ones that are prepared and ready for the printer, other things being equal.

#### CLOSED-END FRAMES FOR MISSOURI.

THE editor of the *Missouri Bee-keeper* says that closed-end frames are his choice. He says: "We can handle them better than any hanging frame, and they are always properly spaced." Elsewhere in the same issue he says: "We put a few closed-end frames in our apiary three years ago, and have been increasing the number ever since. . . . Our best yield has always been from colonies on closed-end frames. They build up early in the spring. A hive with closed-end frames and winter case is the coming hive." Last issue we asked whether closed-end frames were practical in the South, and intimated that possibly propolis might be so bad as to make them intolerable. As far south as Missouri they are not as intolerable as they might be. How is it further south, friends?

#### THE USES OF BASSWOOD IN LINN CO., IOWA.

WE are informed that there is a county in Iowa, named after the great number of basswood (or linn) trees, and it bears, therefore, the name of Linn Co. Mr. J. S. Stoneking, residing in that county at Bartram, says there is a plenty of basswood timber in the county, and, in fact, in all eastern Iowa. The railroad companies bought at Bartram, his postoffice, 3500 cords of wood, at \$2.00 a cord, in 1891, a fourth of which was basswood. It makes the heart of a bee-keeper fairly ache to think of desecrating basswood for cordwood. It is bad enough to use it for sections, furniture, packing-boxes, and paper. Our correspondent says they also use the wood very largely in his vicinity for making kegs and barrels. This is certainly a better use to make of such valuable timber.

#### LARGE OR SMALL BEE-KEEPERS: THE DIFFERENCE BETWEEN THEM.

WE do not despise the small bee-keepers—oh, no! They often give us some of the best ideas and short cuts; but when a large bee-keeper, who owns over 500, 600, or, if you please, over 1000 colonies, is enthusiastic over a certain device, and he knows from long practical experience of its successful working, we feel as if his statement could not be lightly esteemed. Editors have been accused of overlooking the little bee-keepers, and seeking articles from the big bee-guns. There is some truth in it, but they naturally go where they can get the best information—that which rings with *experience*, and is redolent of the aroma of honey and the wax, and of the much-despised propolis. If a man with his thousand colonies finds a thing to be a success that is a money-maker, it will *probably* work pretty well, even with as small a number as ten colonies; but, mind you, you can not reverse this. What gives good satisfaction with ten or even a hundred colonies may not necessarily do for several hundred stocks.

#### FORECASTING RESULTS IN EXPERIMENTING: A SUGGESTION FOR EXPERIMENTAL STATIONS.

AN experimenter should be unbiased. When he starts out on a series of experiments to prove or disprove, he should be just as willing to arrive at one conclusion as another. The trouble with

so much experimenting is, too much forecasting of conclusions; and the experimenter himself is quite inclined to make the thing come out just as he wants it to, on the principle of "I thought so," or, "I told you so." In other words, he should be just as willing to have his pet theories utterly annihilated as to have them substantiated. The man who says, "I told you so," or, "I thought so," when a thing happens to come out so and so, shows that he *wanted* the result to be so and so, no matter whether it be good or evil. It is just this disposition in human nature that makes the world a great deal of trouble; and, barring the one factor of locality, it explains more differences of opinion and more differences in conclusion than any other thing in apiculture. E. R. R.

#### ALUMINIUM—THE NEW METAL.

We have just received 100 beautiful three-inch machinist's rules, made of *pure aluminium*, divided into 8ths, 16ths, and 32ds of an inch. This metal is almost as hard as silver, and so light that the rule will float on water if laid very carefully on the surface. This seems almost incredible. In fact, when one takes it in his hand he is almost startled to find that, although it looks like steel, it is almost as light as wood. It is as proof against rust and tarnish as gold itself, and even at its present price (about \$1.00 per lb.) you *get so much* it already promises to be a formidable rival to brass; and when we recognize that it is better than silver to hold its luster, it seems to be destined at once to take the place—at least to a great extent—of both silver and copper. We can send you one postpaid by mail for only 25 cts. Steel rules, made as accurately as these are, usually cost 50 cts. or more.

#### MOVING A CARLOAD OF BEES TO COLORADO IN THE DEAD OF WINTER—A SUCCESS.

THE project of sending a carload of bees from Eastern New York to Fort Collins, Colorado (see p. 70), in the dead of winter, proved to be a success. We have just received a card to-day, March 26, which reads as follows:

My carload of bees came through to this place Saturday evening, and were all unloaded the same night, and they had a good fly yesterday. I had unexpected success in getting them here in good condition. I will report particulars later.

Fort Collins, Col., March 23.

O. R. COE.

This success is phenomenal, and our friend Coe is to be congratulated. We were afraid he might have trouble in the dead of winter. He is not only now in a place where he is free from losses in winter and spring dwindling, but he has his bees where they commence gathering alfalfa honey soon—quite a scheme.

#### HOLDING A GRUDGE.

OUR friend W. I. Chamberlain gives us a bright thought in the *Ohio Farmer*, as follows:

Then here is another man whose name is a "common noun, Smith." He thinks I don't like him because he once criticised an article of mine in the *New York Tribune* (which I had forgotten if I ever knew it), and once asked some hard questions at an institute (which also I had forgotten). Bless his dear heart! if I had laid up a grudge against every man of that sort, my soul would need a thousand pigeon-holes, all marked "grudge," and variously classified.

How many times this comes up through our correspondence! Somebody will have it that I am prejudiced, or that I have a grudge over something that has happened in the way of business. It reminds me of what Prof. Cook once said when I told him I feared I had hurt his feelings by something I had said carelessly. He replied: "Why, bless your heart, Bro. Root, this world is too full of important matters for us to take time to feel hurt, especially when we know each other as you and I do."

#### AN INGENIOUS COMPLIMENT.

SOMETIMES we get orders to stop GLEANINGS; but here is a subscriber who says he does not want it any *longer*. See:

I do not want you to send GLEANINGS any *longer*; but how I wish it were a little *wider* and a good deal *thicker*!

CHESTER OLMSTEAD.

East Bloomfield, N. Y., March 28.

#### GOOD NEWS AT THE HOME OF THE HONEY-BEES.

Just at the last moment, as we go to press, all things are brought to a standstill to announce the advent of a grandson to the founder of the Home of the Honey-bees. Ernest is going around full of smiles, and is as proud as—well, as proud as a young man ought to be when he first feels the thrill of being father to a eight-pound boy. He arrived Easter Sunday, March 29. A. I. R.

#### SOMETHING NEW IN THE LINE OF SMOKERS.

OUR friend Hill, of the *Bee-keepers' Guide* (it just now occurs to us that he has *not* been quite as friendly as he might have been, but never mind), has just gotten out something in the line of smokers, that, so far as we can judge by engravings, is, in many respects, ahead of any thing heretofore offered. The idea is so novel and unique that one feels ashamed of himself because he did not invent it long ago. My impression is, at the present writing, that he is entirely original in the idea. It is a cold-blast smoker, but it has a straight barrel, like the Bingham. The blast-tube is straight, so it is the easiest thing in the world to clean it, and yet it opens and shuts to put in fuel, handier and easier than any thing heretofore brought out; and the whole thing, when held in the hand, comes in just the most convenient shape for use. Send us an electrotype, friend Hill, and we will give your invention the notice it deserves, free of charge.

#### DADANT'S LATEST MASTERPIECE.

As if not satisfied with the laurels which he has just won in the English-speaking apicultural world in his revision of Langstroth's book, Mr. Dadant has just given to his own fellow-countrymen of France the same work, adapted, as nearly as can be, to that land. Side by side, the two books look exactly alike at first glance. The English book is a little thicker than the French, although the latter contains 73 pages more than the English work. One of the happiest things about this great undertaking is the just prominence which Mr. Dadant gives to those who helped him—particularly Mr. Charles F. Muth, of Cincinnati. In this connection we beg leave to translate a few lines. After speaking of Mr. Langstroth's inability to revise his own book, on account of his brain troubles, Mr. Dadant says:

Having had knowledge of his desire, and of his futile attempts to accomplish so heavy a task, we thought (my son and I) that we would offer him our assistance. By the aid of our friend Charles F. Muth, who was enthusiastic over our project, the plan was soon carried out. After our conferences Mr. Langstroth was to pass in review all of our work, pointing out our oversights, suggesting ideas, etc. In consequence, the revision should have been called "Langstroth and Dadant." Unfortunately our friend's sickness rendered him incapable of doing the work. We continued writing, nevertheless, and, quite naturally, inserted his beautiful periods without marking them, thinking always that his name would appear in the title-page of the work. Finally it became necessary to do entirely without his assistance, but the idea did not occur to us to insert, in the English edition, published by us in 1889, some mark to indicate what we borrowed. Mr. Bertrand, of Nyon, Switzerland, having pointed out this omission, we have made every effort to discover what we copied, and have inserted it in brackets in the French edition, happy to render to our friend the honor that belongs to him.



Concerning the publisher of the book, Mr. Bertrand, referred to above, Mr. Dadant says:

If the reader has any interest in reading and studying this book, I beg of him to tender his thanks to my friend Mr. Bertrand; for without him—without the disinterested help he has given me so generously, this edition would have been deferred indefinitely, not to say for ever.

In regard to the translation, Mr. Dadant says:

The French edition is not a close translation of the American. I have made changes, additions, and suppressions, suggested by the tastes of the two peoples. I have preserved, as far as possible, Mr. Langstroth's beautiful style; but before introducing new matter and new cuts therein, I borrowed from the best sources—English, German, French, Italian, Swiss, and American.

Throughout the entire work Mr. Dadant has accorded the fullest credit with an impartial hand. The illustrations are practically the same as in the English edition, and are 183 in number, besides 24 full-page and double-page cuts. The book is so bound as to lie open flat at any page, which is a decided convenience.

We have only to say, in conclusion, that the French bee-keepers are to be congratulated on having this great work in their own tongue. We have not yet been able to put a price on it in this country; but it can doubtless be obtained of Chas. Dadant & Son, Hamilton, Ill.

#### THE CONDITION OF OUR BEES MARCH 25.

ON the above date the weather warmed up and we examined our bees. After 10 years with practically no winter losses, we are now obliged to chronicle, that our colonies are dying rather faster than we like to have them. It is now only the 28th of March; and yet, out of 150 in the home yard, 17 are dead; and if we add to this the loss from those united the number will be 21, and the indications are that others will follow the silent majority. The trouble seems to be a case of real spring dwindling, as mentioned elsewhere. Our season last year was a poor one for honey; and the consequence was, that we were obliged to feed up the entire apiary on sugar stores; so that, so far as stores were concerned, they had the very best that could be made from granulated sugar and water. They had been drawn on heavily for pounds of bees and queens up to quite late in the fall, but scarcely more so than during previous seasons, when we have wintered with almost perfect success. There were 120 in chaff hives, just as we have packed them for the last 12 years, and 30 were put into outside winter cases. Now, right here will be something interesting for friend J. A. Green, and perhaps others.

#### WINTER CASES VS. CHAFF HIVES.

ELEVEN colonies have already died in chaff hives, and six more were so nearly gone they had to be united, the six making only two discouraged colonies, not much better than nuclei, so the total loss in chaff hives, so far, amounts to 15, and there is a prospect that quite a number more chaff hives will follow soon.

Six have died in outside winter cases, with dead-air spaces. Two of the six were set apart last December, for experiment. The sawdust had fallen away from the outside edges, and we decided to let them remain and see how they would do. The wind was thus allowed to circulate between the two walls. One of these died in February, and the other about the middle of this month (March). So double walls with a free circulation of air do not answer. There was still another in a winter case that was weaker than the average, and we thought it would be a good chance to test the cases for a nucleus. This was also among the number that died. Virtually, then, only three died

that were of *average strength* in the fall, put in outside winter cases. The proportion would stand, then, 11 per cent died in winter cases, and 14 per cent in chaff hives. These per cents are based on average colonies put up the best we knew how, on the two plans. Although the winter cases are ahead, yet we think it simply happened to be so, and we therefore do not conclude that winter cases have done better than chaff hives. They have simply held their own. Perhaps we should say this: That Mr. Spafford thought the surviving in winter cases were drier than those surviving in chaff hives. The excessive moisture that we have had during this spring, and the sudden cold snaps during March, have made the chaff hives rather damp, and the packing and cushions held too much moisture for the good of the bees. The winter cases, on the other hand, were perfectly dry. This may account for the apparent difference.

#### OUR SHANE YARD, AND HOW IT IS WINTERING.

Our Shane apiary, located six miles east of the home yard, contained last fall 85 colonies, about 35 of which had been drawn on heavily for pounds of bees, and queens for orders, and early last September they were therefore queenless, and weak. Our Mr. Spafford went down and introduced queens to the 35 made queenless, by the candy plan. Circumstances were such that we did not get down there again that fall, even to see whether the caged queens were out and accepted. Our team was very much crowded on other work; and before we could send men down to pack them for winter, muddy roads set in. In some places the mud was half way to the hub; and shortly after cold weather set in. The bees were in the same hives in which they were bought last summer. These hives were ten-frame Langstroth, with 7-inch cap. There were two division-board feeders—one on each side, and they had plenty of stores, and the colonies were strong—that is, those outside of the 35, spoken of as being weak. With dead-air spaces on each side and top, we concluded this would be a good chance to test the air-spaces. Well, the original 50 we found were in splendid condition; but those that had been drawn on for bees and queens, were dead.

Now, all this does not prove that air-spaces are a success or a failure. It proves that, in this season, with its excessive moisture, they were just about as good as chaff hives, and in some respects better—*so far*. As we have still pretty much the worst part of the spring to pull through, we may yet tell an entirely different tale, unless the weather changes.

#### CELLAR WINTERING.

As we said at the head of this department, the bees in the cellar are in most excellent condition; and if the 35 weakest ones in the Shane yard had been put in the cellar, we think they would have been all alive to-day; for we had quite a few weak ones that were put in the cellar last fall, and they are still alive and healthy. There are very few dead bees on the floor of the cellar; and for this winter at least, we think that cellar wintering in our locality would do better than outdoor wintering. Doolittle, you know, has wintered both ways for years, on the principle that it is not best to put all your eggs in one basket. While one winter bees may do better outdoors, another winter the state of affairs may be reversed. Doolittle's head may be pretty level on this point.

We do not think we should be in haste to take the bees from the cellar this spring. If they are doing well, leave them in longer rather than to take them out too soon.

E. R. R.

## SPRING DWINDLING; A NOTE OF WARNING.

PRESENT reports seem to indicate that we are to have, or, rather, have had already, to some extent, a recurrence of our old troubles of getting bees through the spring months. We have already lost 17 here at the Home of the Honey-bees; and reports are coming in daily, asking what they shall do to prevent bees from dying off so, with an abundance of stores in their hives. Well, friends, if you will look over the back volumes of our journals of eight or ten years ago, you will find page after page written on this very matter, and by some of the veterans in the business. But after all, there are some strange things about it. One day this week we succeeded in making a foundation-mill giving greater depth of cell, or, perhaps, higher walls, than any thing we have ever before made. We directed that a sheet of it should be hung in one of the strongest colonies, and that they should then be fed, and make them build it out as quickly as possible, to see how it would work. The apiarist went for his strongest colony; but, lo and behold! it had died of spring dwindling, with the combs well provisioned with stores of sugar syrup. This was our picked colony, and in a chaff hive, prepared exactly as we have prepared them for almost ten years without loss. What is the trouble? Well, we do not exactly know; but we think it was mainly from the long-continued dampness, alternating with severe cold weather in March. There is one sure remedy—nice, warm, sunny weather, and that is about the only *sure one* we know of. Friend Lacy's arrangement to fly the bees in a warm room *might* be a substitute. By the way, we wish he would report how his bees in the room are getting along by this time. See pages 25 and 101. Removing the outer shell, where it can be done, taking off the covering of the brood-nest, and letting the sun shine directly into all the interior of the hive, as advised by Dr. Tinker in this issue, is one of the best things we know of, providing you have a sunny day. You need a little caution right here, however; and that is, to have the brood-nest covered so no bees can get out through the top, and thus make an entrance at their first flight. We have had them do this, resulting in the loss of bees, because they located another entrance instead of the regular one. We would move up the division-board, getting the bees and brood up toward the south side of the hive. Of course, you will unite all queenless colonies with one that has a queen; and where they get too weak, say down to a pint of bees or less, better remove one queen and double them up unless you are having nice weather, and the bees are getting pollen. Sometimes you can sell extra queens from these reduced colonies. We would, however, tell the purchaser the circumstances; and, if the queen does not turn out well, make her good. Keep daily watch of your weak colonies. Remember that queens are valuable at this time of year, and you do not want to lose them if you can help it. When a colony becomes so reduced that it can not protect its stores, contract the entrance and look out for robbing. By no manner of means leave hives full of honey standing out exposed after the bees are dead. You will have robbing such as you never had before if you do, and your neighbors will be very apt to vote you and your bees a nuisance. Windbreaks are a very important aid to these weak colonies; but at the same time give them every particle of sunshine possible. There is nothing like sunshine in the spring. If these reduced colonies get out of stores you will have to be very careful about giving them more. A feeder is likely to start robbing if you do not manage it just right; opening the top of the

brood-chamber to let the bees come up through to the feeder will let out the heat from a small colony to such an extent that it often uses them up. If you use a Simplicity feeder, put it right over the cluster of bees, then put over it a Hill device, or something similar, then your cushion, and pack it down tight, so not a cranny is left for the warm air to escape. We have killed good prosperous weak colonies in March and April, simply by making an opening to let the bees come up to get the feed. When they get to bringing new pollen and new honey they are generally all right, even if there is not more than a good pint of bees in the hive. But sometimes a severe freeze will wind up bees, brood, and all, even after they have been for a week or more doing fairly. The old bees seem to play out before the young ones can hatch; and a good many times the young ones, after they do hatch, seem to be too feeble to amount to any thing.

There is another side to these spring losses: There is a large quantity of bees in the country, and the demand for bees by the pound and nucleus is going to be greater, probably, than for many years. Our friends in the South can doubtless give their Northern neighbors very efficient aid just now. A pound or even half a pound of healthy bees from a Southern locality will set a weak puny colony right on its feet. Look out that they do not kill your queen, however. Another thing, when you are obliged to buy bees, by all means get them as near home as possible. If you can go and bring them with a wagon, it will be ever so much better than having them shipped by express. We have bees and queens to sell, but we are always sorry to see people send off hundreds of miles when there are plenty of bees just as good right around home. Look out for advertisers who claim that their bees are better than those belonging to anybody else. Even if those were true, it is not the bees we want, but the queens. "Deacon Homespun" has unconsciously given us a good illustration in this very issue.

Now, then, do not become demoralized, even if your bees die. We have the promise that "all things shall work together for good to those who love the Lord;" therefore the important thing—in fact, the "one thing needful," is to love the Lord with all our might, mind, soul, and strength. Now, do not forget the other part—"Love thy neighbor as thyself;" therefore help your neighbor in his spring troubles by buying his bees or selling him some more.

If you have not taken a look at your bees, go this minute and make a careful examination. It will not do any hurt, even if you should find that they have not "got it." When they first begin to fly, especially in chaff hives, be sure the entrances are unobstructed. Not only do the bees need a free passage out and in, but during damp weather a good deal of ventilation is needed.

A. I. R.

## PRICE LISTS RECEIVED.

Jos. E. Shaver, Friedens, Va.  
W. Hood, Spring Green, Wis.  
St. Joseph Apiary Co., St. Joseph, Mo.  
A. E. Manan, Bristol, Vt.  
C. F. Muth & Son, Cincinnati, O.  
F. H. & E. H. Dewey, Westfield, Mass.  
Falconer Manufacturing Co., Jamestown, N. Y.

## CONVENTION NOTICES.

The Missouri State Bee-keepers' Association will meet at Booneville, Mo., April 9 and 10, instead of 3 and 4.  
Mexico, Mo. J. W. Rouse, Sec'y.

The Bee-keepers' Association and Fair will be open May 6.  
Open to all. H. Smith, Sec'y.  
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Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

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4-8db

**J. W. TAYLOR, Ozan, Ark.**

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## LOOK HERE, FRIENDS.

If you want Black or Hybrid Bees from March 15 to May 15, at \$1.00 per pound; Hybrid Queens, 50c, Black, 25c, as long as I have them, send to me. I guarantee safe arrival and satisfaction. Have shipped bees successfully for 10 years to the northern States and Canada. 6-9db

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Reference: Albany County Bank.  
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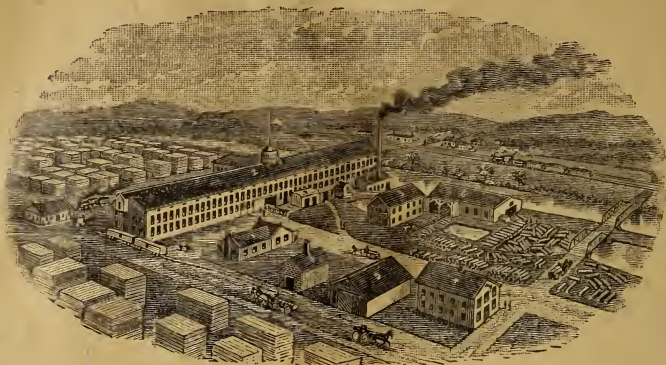
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